



# A-1C/A-2C Dowel Drill Operator/Service Manual



## Hours of Operation

7:30AM to 4:00PM Mon. – Fri. Eastern Standard Time

1444 St Rt 42  
Mansfield, OH 44903

[www.minnich-mfg.com](http://www.minnich-mfg.com)  
e-mail: [sales@minnich-mfg.com](mailto:sales@minnich-mfg.com)

Phone: 419.903.0010  
Toll Free: 800.524.1033  
Fax: 419.903.0110

# TABLE OF CONTENTS

Section	Page #
<b>WARRANTY</b> .....	4
<b>GENERAL SPECIFICATIONS</b> .....	5
<b>GENERAL SAFETY RULES</b> .....	8
WORK AREA .....	9
PERSONAL SAFETY .....	9
TOOL USE AND CARE .....	9
SERVICE .....	10
<b>SAFETY DECAL PLACEMENT</b> .....	11
<b>DRILL STEEL AND BITS</b> .....	15
WARRANTY .....	15
GENERAL NOTES .....	15
DRILL STEEL AND BITS IN STOCK .....	16
USAGE CALCULATION .....	17
BIT INSTALLATION AND REMOVAL .....	17
<b>SET-UP PROCEDURE</b> .....	18
<b>RECOMMENDED LUBRICANTS</b> .....	18
<b>OPERATION PROCEDURE</b> .....	19
<b>MAINTENANCE LUBRICATION CHART</b> .....	20
<b>TROUBLE SHOOTING</b> .....	21
<b>CYLINDER SERVICE KITS</b> .....	23

# TABLE OF CONTENTS CONTINUED

## Section

## Page #

### **PART BREAKDOWNS**

WHEEL ASSEMBLIES A-1C & A-2C-----	24
BRAKE ASSEMBLY -----	25
STEERING ASSEMBLY -----	26
RAIL ASSEMBLY A-1C-36-----	28
RAIL ASSEMBLY A-1C-30-----	29
RAIL ASSEMBLY A-1C-24-----	30
RAIL ASSEMBLY A-1C-48 & A-2C -----	31
DRILL SUPPORT ASSEMBLY (0A9776-00019) -----	32
LIFT GROUP A-1C-48 -----	33
LIFT GROUP A-1C-36, 30 & 24 -----	34
LIFT GROUP A-2C-----	35
RAIL INSTALLATION A-1C-48-----	36
RAIL INSTALLATION A-2C-----	37
CASTER ASSEMBLY A-2C-----	38
PIPING DIAGRAM A-1C-----	39
PIPING DIAGRAM A-2C-----	40
CONTROL PANEL ASSEMBLY A-1C-----	41
CONTROL PANEL ASSEMBLY A-2C-----	42
LUBRICATOR INSTALLATION A-1C -----	43
DRILL VALVE (010925-00000) -----	44
VALVES (010935-00000 & 010936-00000)-----	45
PRESSURE REGULATOR (002880-00000) -----	46
PRESSURE REGULATOR (009626-00010) -----	47
LUBRICATOR (001864-00000) A-1C -----	48
LUBRICATOR (007330-00000) A-2C -----	49
40# (17.2kg) ROCK DRILL A-1CL-48 & 36 (012230-00000) -----	51
30# (13.2 kg) ROCK DRILL A-1CL-30 (A11104-00100) -----	53
15# (6.8kg) ROCK DRILL A-1CL-24 (009052-00000) -----	55
50# (23kg) ROCK DRILL A-2C (009350-00000)-----	57

## **MINNICH MANUFACTURING CO. WARRANTY AND SERVICE AGREEMENT**

Minnich Manufacturing Co. warrants to the original purchaser that, if any part of the product proves defective in material or workmanship within 90 days from purchase, and is returned to Minnich Manufacturing Co. within 90 days after the defect is discovered, Minnich Manufacturing Co. will at its option repair or replace said part. Product shipped to Minnich Manufacturing Co. freight prepaid will be returned freight prepaid. Product shipped to Minnich Manufacturing Co. freight collect will be returned freight collect.

### **LIMITATIONS:**

Warranty does not apply to repairs that are required because of normal wear or tear, parts or products that are damaged as a result of misuse, neglect, accident or fire, or of lightning, flooding or other acts of God, or by improper installation or maintenance, of which Minnich Manufacturing Co. will be the sole judge. Warranty does not apply to parts or products that have been modified by an unauthorized party that has in Minnich Manufacturing Co.'s judgment affected their performance or reliability. Warranty does not apply if the part or product substantially fulfills the performance specifications.

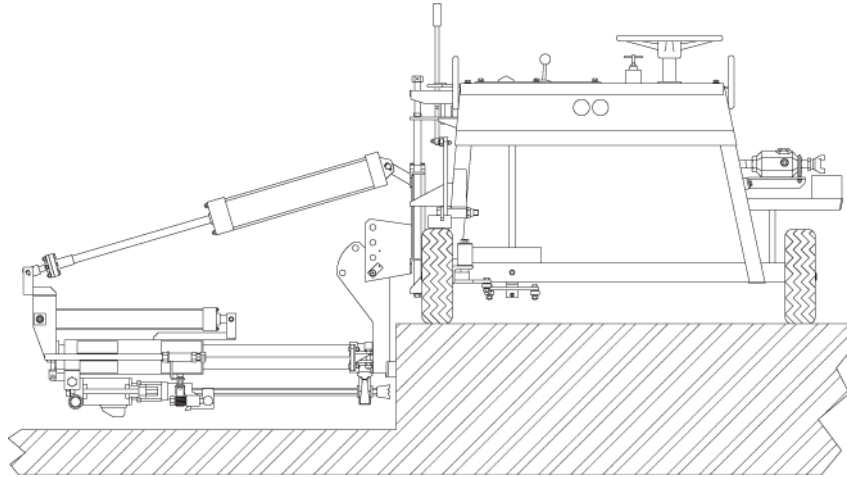
Minnich Manufacturing Co. shall not in any event be liable for the cost of any special, indirect, or consequential damages as a result of this product.

### **SERVICE:**

Out of warranty service is available through Minnich Manufacturing Co.

# A-1C

## Single Drill, On Slab Unit



**Three position drilling with 48" unit: Horizontal, Vertical and 35 degree stitch**

**Urethane filled tires**

**3-1 skew drilling standard**

**Adjustable drill height and depth**

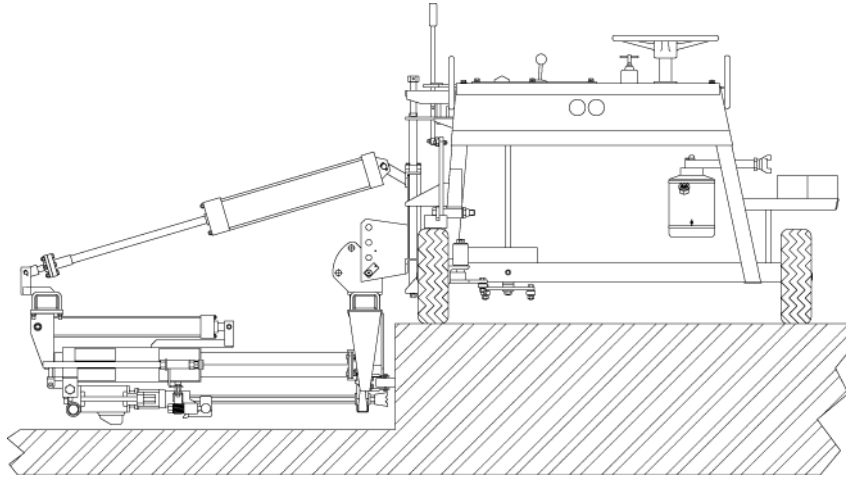
**Dust collection is available**

Model	A-1C-48	A-1C-36	A-1C-30	A-1C-24
Drill Steel Shank	.875" x 4.25" (22.2mm x 107.9mm)	.875" x 4.25" (22.2mm x 107.9mm)	.875" x 3.25" (22.2mm x 82.6mm)	.875" x 3.25" (22.2mm x 82.6mm)
Drill Steel Length U.C.	24"(61.0cm)	12"(30.5cm)	12"(30.5cm)	9"(22.9cm)
Drill Bit Diameter	.625" – 2.50" (15.9mm to 63.5mm)	.625" – 2.50" (15.9mm to 63.5mm)	.625" – 1.625" (15.9mm to 41.3mm)	.625" – 1.00" (15.9mm to 25.4mm)
*Maximum Drill Depth	18" (45.7cm)	10" (25.4cm)	10" (25.4cm)	7" (17.8cm)
Drill Distance From Top of Slab	2.5" – 12.75" (6.4cm to 32.4cm)	2.5" – 12.75" (6.4cm to 32.4cm)	2.5" – 12.75" (6.4cm to 32.4cm)	2.5" – 12.75" (6.4cm to 32.4cm)
Minimum Cutout Width	48" (121.9cm)	36" (91.4cm)	30" (76.2cm)	24" (61.0cm)
SCFM Required	92.2 (2.61 m <sup>3</sup> /min)	92.2 (2.61 m <sup>3</sup> /min)	75 (2.12 m <sup>3</sup> /min)	36 (1.02 m <sup>3</sup> /min)
PSIG Required	90 (0.62MPa)	90 (0.62MPa)	90 (0.62MPa)	90 (0.62MPa)
Weight	700lbs. (317.5kg)	665lbs. (301.6kg)	630lbs. (285.8kg)	605lbs. (274.4kg)

**Specifications shown are standard. Variations to the standard are available.**

**\*Based on 2 piece steel and bits. Whirlybits should be 1" (2.5cm) longer for maximum drilling depth.**

# A-2C Multiple Drill, On Slab Unit with Steering



***Three position drilling:  
Horizontal, Vertical and 35 degree stitch  
Urethane filled tires  
Larger oiler for easy maintenance  
Adjustable drill height, depth and centers  
Dust collection is available***

Model	A-2C
Drill Steel Shank	.875" x 4.25" (22.2mm x 107.9mm)
Drill Steel Length U.C.	24"(61.0cm)
Drill Bit Diameter	.625" – 2.50" (15.9mm to 63.5mm)
*Maximum Drill Depth	18" (45.7cm)
Drill Distance From Top of Slab	1.5" – 11.75" (3.8cm to 29.8cm)
Minimum Cutout Width	48" (121.9cm)
SCFM Required Per Drill	92.2 (2.61 m <sup>3</sup> /min)
PSIG Required	90 (0.62MPa)
Weight	900lbs. (408.2kg)

***Specifications shown are standard. Variations to the standard are available.***

***\*Based on 2 piece steel and bits. Whirlybits should be 1" (2.5cm) longer for maximum drilling depth.***

## GENERAL SPECIFICATIONS CONT

### Pneumatic Connection:

- An approved air disconnect is required to be installed in accordance to all Local and National Codes.

### Environmental:

- +5°C to +40°C (+41°F to +104°F)
- 50% Rh at +40°C (+104°F), (90% Rh at +20°C (+68°F))
- Altitude – 1000m (3280ft) above mean sea level
- Unit is to be disposed according to all Local and National Regulations

### Transportation and Storage:

- -25°C to +55°C for 24 hours (-13°F to +131°F)

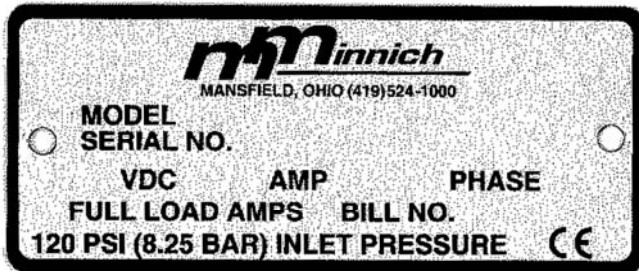
### Ingress Protection:

- Protection level IP2X is provided

### Sound:

- System operates at sound levels about 85dBA and 85dBC. Hearing protection is required.

### System Nameplate:




# GENERAL SAFETY RULES

This manual contains **NOTES**, **CAUTIONS**, and **WARNINGS**. These **MUST** be followed to prevent the possibility of improper use, incorrect servicing, damaging the equipment, or personal injury. Read and comply with all **NOTES**, **CAUTIONS** and **WARNINGS** included in these instructions.

**NOTE:** Notes contain additional information important to the operation of the equipment.

**CAUTION:** Cautions provide important information to prevent mistakes that could result in damage to the equipment.

 **WARNING:** Warnings alert one to practices or conditions that could lead to personal injury or death!

 **WARNING**  
Read and understand all instructions.  
Failure to follow all instructions listed below may result in serious injury.

 **WARNING**  
**DO NOT USE TOOL IF IT IS IN NEED OF SERVICE!**

## SAVE THESE INSTRUCTIONS



## **- WORK AREA -**

**Keep your work area clean and well lit.**

Cluttered and dark areas invite accidents.

**Keep bystanders, children, and visitors away while operating a power tool.**

Distractions can cause you to lose control.

## **- PERSONAL SAFETY -**

**Stay alert, watch what you are doing and use common sense when operating a power tool. DO NOT use tool while tired or under influence of drugs, alcohol or medication.**

A moment of inattention while operating power tools may result in serious personal injury.

**Dress properly. DO NOT wear loose clothing, or jewelry. Tie up long hair. Keep your hair, clothing, and gloves away from moving parts.**

Loose clothes, jewelry, or long hair can be caught in moving parts.

**Avoid accidental starting. Be sure switch is off before connecting.**

Connecting tools that have switches on invites accidents.

**DO NOT overreach. Keep proper footing and balance at all times.**

Proper footing and balance enables better control of the tool in unexpected situations.

**Use safety equipment. Always wear eye and hearing protection.**

Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear suitable hearing protection device such as earmuffs or earplugs.

**Keep a first-aid kit near the power tool.**

Safety depends on you.

## **- TOOL USE AND CARE -**

**Only qualified persons should operate the power tool.**

Make sure you operate and service your power tool correctly.

**DO NOT force tool. Use the correct tool for your application.**

The correct tool will do the job better and safer at the rate for which it is designed.

**DO NOT use tool if switch does not turn it on or off.**

Any tool that cannot be controlled with the switch is dangerous and must be repaired.

**Disconnect the tool from the power source before making any adjustments, changing accessories, or storing the tool.**

Such preventive safety measures reduce the risk of starting the tool accidentally.

**Store tools out of the reach of children and other untrained persons.**

Tools are dangerous in the hands of untrained users.

**Maintain tools with care. Keep tools clean.**

Properly maintained tools are less likely to bind and are easier to control.

**Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tools operation. If damaged, have the tool serviced before using.**

Many accidents are caused by poorly maintained tools.

**Use only accessories that are recommended by the manufacturer for your model.**

Accessories that may be suitable for one tool may become hazardous when used on another tool.

– **SERVICE** –

**DO NOT** run the drill unit while you make adjustments and repairs unless the procedure is approved.

**Escaping fluid and air under pressure can have sufficient force to penetrate the skin causing serious personal injury.**

If injured by escaping fluid or air, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.

**Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, tubes and hoses are not damaged.**

**DO NOT** use your hand to search for leaks.

Use a piece of cardboard or wood to search for suspected leaks.

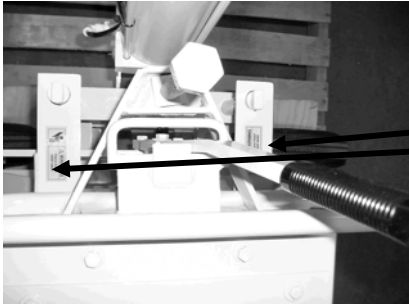
**Tool service must be performed only by qualified repair personnel.**

Service or maintenance performed by unqualified personnel could result in a risk of injury.

**When servicing a tool, use only identical replacement parts.**

Use of unauthorized parts or failure to follow maintenance instructions may create a risk of injury.

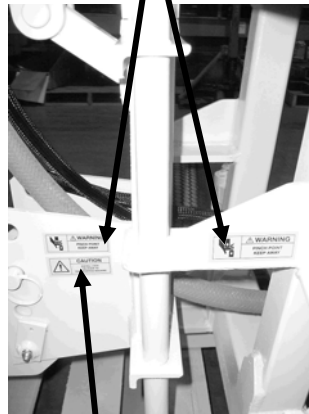
# A-1C Safety Decal Kit Placement (011394-00000)



012287-00006



012287-00001



012287-00008



012287-00007



012287-00012



012287-00003



012287-00062



012287-00010



012287-00005



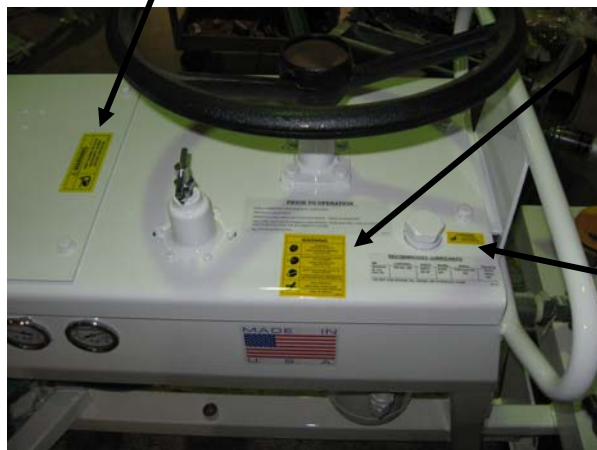
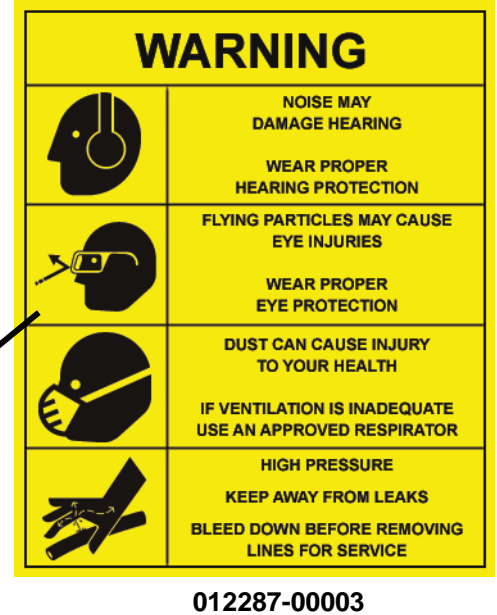
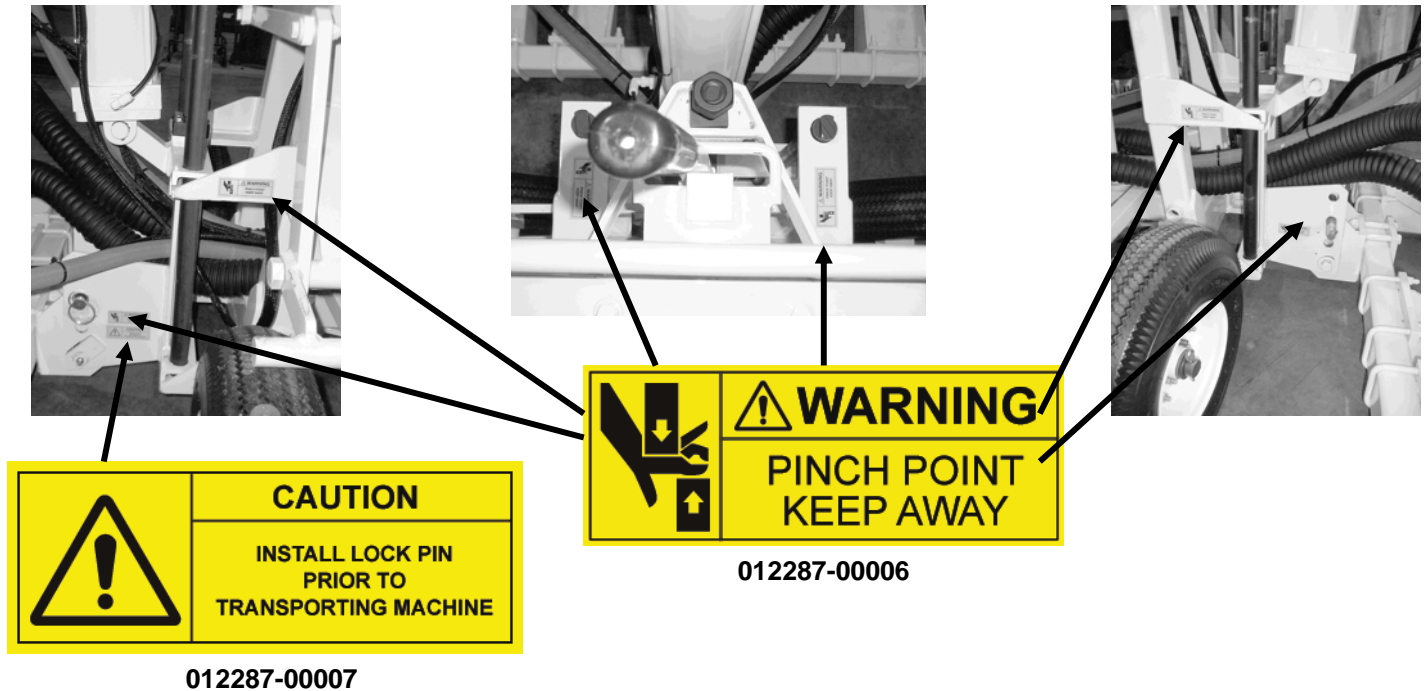
012287-00064



012287-00007



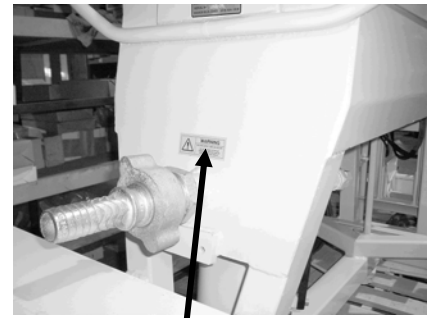
# A-2C Safety Decal Kit Placement (011394-00000)







012287-00062



012287-00008

012287-00010



012287-00005

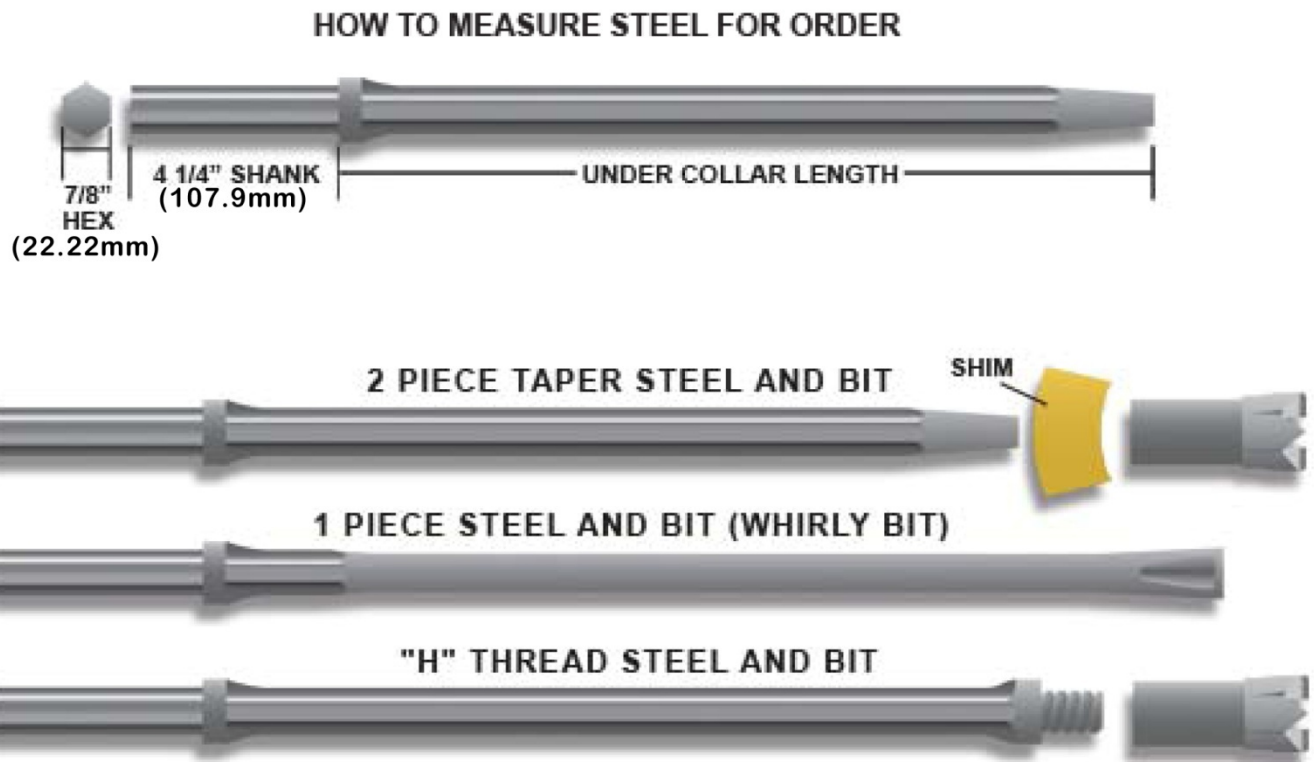


012287-00007



012287-00064

# Drill Steel and Bits



## Warranty Policy

All drill steel and bits sold to customer are intended for use in drilling concrete. It is not capable of drilling through steel mesh, rebar or dowel bars. Use in these applications will void all warranties and dramatically shorten bit life. Bit life is also affected by the sharpness of the bit, type of aggregate and condition of concrete. Minnich Manufacturing's drill steel and bit warranty is limited to the warranty provided by the supplier. All warranty claims must be submitted to Minnich for evaluation and sent to the supplier for authorization.

## General Notes

1. 2" (50.8mm) diameter maximum bit for hydraulic drills.
2. 2 1/2" (63.5mm) diameter maximum bit for pneumatic drills.
3. 5/8" (16mm) diameter is the smallest hole diameter.
4. Cutting speed varies from 15 to 30 seconds for a 6" (152.4mm) deep hole, depending on bit diameter and aggregate.
5. On average you can get 180 holes, 9" (228.6mm) deep per bit.
6. On average you can get 600 holes, 9" (228.6mm) deep per drill steel.
7. Removable bits are carbide and cannot be re-sharpened.
8. Whirly bit steel can be re-sharpened twice.

# Drill Steel & Bits In-Stock

1 Piece Steel & Bit (Whirly Bit)			
Part Number	Hole Diameter	Shank Size	UC Length
005367-12.00	5/8" (15.9mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	12" (30.5cm)
005367-24.00	5/8" (15.9mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	24" (61.0cm)
004209-12.00	3/4" (19.1mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	12" (30.5cm)
004209-24.00	3/4" (19.1mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	24" (61.0cm)
004541-12.00	7/8" (22.2mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	12" (30.5cm)
004541-24.00	7/8" (22.2mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	24" (61.0cm)
004745-12.00	1" (25.4mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	12" (30.5cm)
004745-24.00	1" (25.4mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	24" (61.0cm)

All 4 1/4" (107.9mm) shanks can be cut to a 3 1/4" (82.55mm) shanks

Tapered Steel			
Part Number	Shank Size	UC Length	Notes
003749-12.00	7/8" x 4 1/4" (22.2mm x 107.9mm)	12" (30.5cm)	For 1" (2.54cm) Bits ONLY 003747-1.000
003749-24.00	7/8" x 4 1/4" (22.2mm x 107.9mm)	24" (61.0cm)	
004116-12.00	7/8" x 4 1/4" (22.2mm x 107.9mm)	12" (30.5cm)	For 1 1/8" (2.86cm) & Larger Bits ONLY
004116-24.00	7/8" x 4 1/4" (22.2mm x 107.9mm)	24" (61.0cm)	
Tapered Bits			
Part Number	Hole Diameter	Shim Part Number	Notes
003747-1.000	1" (2.54cm)	003839-00000	Use 003749-12.00 or 003749-24.00 Steel ONLY
003747-1.120	1 1/8" (2.86cm)	003901-00000	
003747-1.180	1 3/16" (3.01cm)	003901-00000	Use 004116-12.00 or 004116-24.00 Steel ONLY
003747-1.250	1 1/4" (3.18cm)	003901-00000	
003747-1.310	1 5/16" (3.34cm)	003901-00000	
003747-1.370	1 3/8" (3.49cm)	003901-00000	
003747-1.430	1 7/16" (3.65cm)	003901-00000	
003747-1.500	1 1/2" (3.81cm)	003901-00000	
003747-1.560	1 9/16" (3.97cm)	003901-00000	
003747-1.620	1 5/8" (4.13cm)	003901-00000	
003747-1.750	1 3/4" (4.45cm)	003901-00000	
003747-1.810	1 13/16" (4.60cm)	003901-00000	
003747-1.880	1 7/8" (4.76cm)	003901-00000	
003747-2.000	2" (5.08cm)	003901-00000	

All 4 1/4" (107.9mm) shanks can be cut to a 3 1/4" (82.55mm) shanks

"H" Thread Steel		
Part Number	Shank Size	UC Length
005061-24.00	7/8" x 4 1/4" (22.2mm x 107.9mm)	24" (61.0cm)
05061B-24.00	1" x 4 1/4" (25.4mm x 107.9mm)	24" (61.0cm)
"H" Thread Bits		
Part Number	Hole Diameter	Note
005140-1.370	1 3/8" (3.49cm)	
005140-1.500	1 1/2" (3.81cm)	
005140-1.620	1 5/8" (4.13cm)	
005140-1.750	1 3/4" (4.45cm)	
005140-1.870	1 7/8" (4.76cm)	
005140-2.000	2" (5.08cm)	
005140-2.250	2 1/4" (5.72cm)	
005140-2.500	2 1/2" (6.35cm)	Multiple use bit

All 4 1/4" (107.9mm) shanks can be cut to 3 1/4" (82.55mm) shanks



## Usage Calculation

The calculations below are nominal and could vary depending on the hardness of the concrete, aggregates used and the possibility of bits hitting steel reinforcement.

Whirly Bit, Taper Bit and "H" Thread Bit

(B)Bit=180 holes x 9" (22.86cm)

B=1620" (4114.8cm)

Number of bits needed = (number of holes x hole depth)/1620"

Taper Steel and "H" Thread Steel

(S)Steel=600 holes x 9" (22.86cm)

S=5400" (13716cm)

Number of steels needed = (number of holes x hole depth)/5400"

Example:

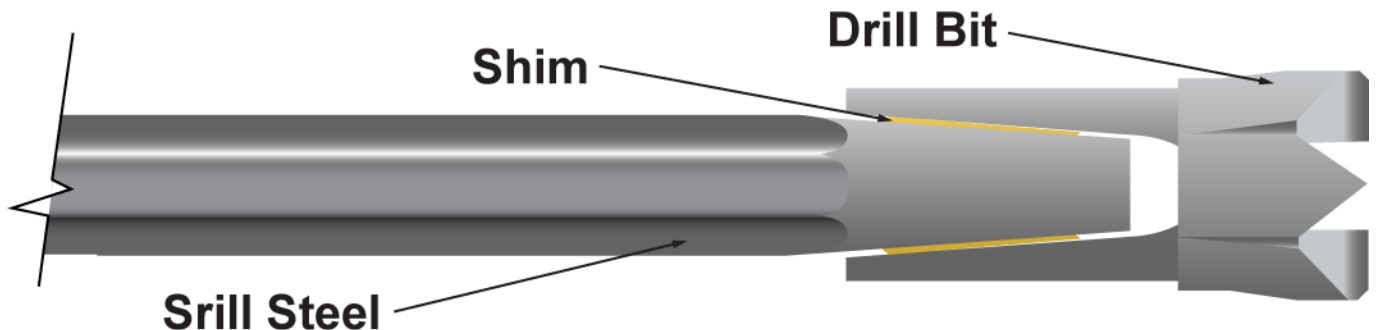
Need 50,000 Holes 12" (30.48cm) Deep for the job.

$(50,000 \times 12)/1620 = 371$  Bits

$(50,000 \times 12)/5400 = 112$  Steels

## Drill Bit Installation

1. Check to see that the hole through the center of the drill steel is not blocked, if so remove the object.
2. Clean the tapered end of the drill steel and the inside of the drill bit with a non-oily cleaner, making sure not to leave any oily residue.
3. Make sure a brass shim is in the drill bit. If not, carefully roll a new one and slide it into the bit making sure that the ends do not overlap.
4. Put the drill bit on the tapered end of the drill steel and tap it on a firm surface to seat the bit.



## Drill Bit Removal

1. Swing latch so that drill steel can be removed from drill.
2. Pull drill steel out of drill.
3. Using two hammers, place one hammer on bottom side of bit. Using other hammer, strike the bit on the topside. Rotate drill steel 1/4 turn and strike top of bit again. Repeat procedure until bit comes off.

**CAUTION: Bit may pop off of drill steel with some force.**

## A-1C A-2C Set-Up Procedure

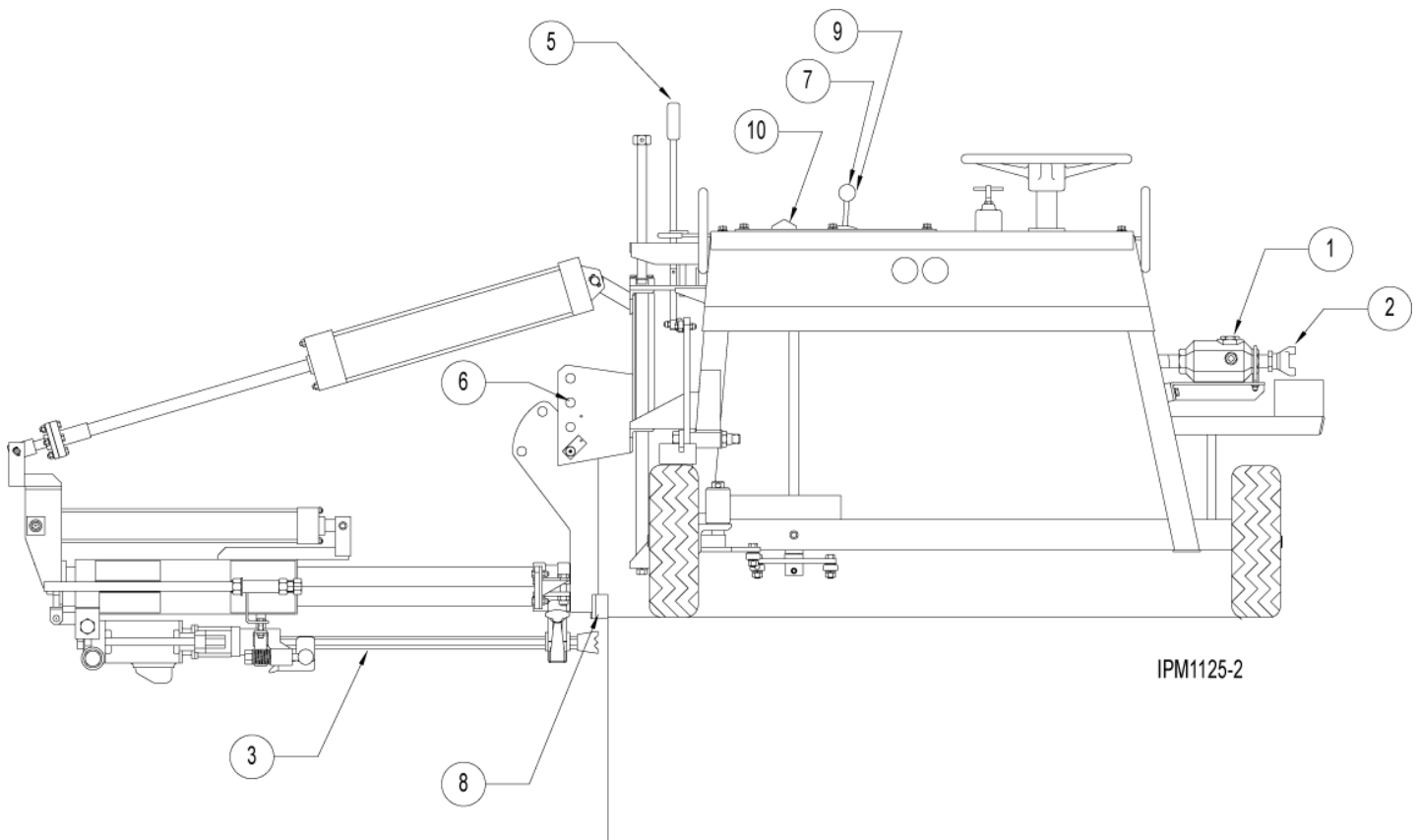
1. Lubricator – Make sure that the lubricator is full. See recommended lubricants below.
2. Air Supply – Use a 3/4" hose to supply air to the drill unit.
3. Install the drill steel and bit into the drill.
4. Make sure that the air compressor is on.
5. Position the drill where the first hole is to be drilled and set the brake.
6. Remove the rail locking pin and using the lift valve, lower the rail to the horizontal drilling position.
7. If the rail is not parallel to the surface of the slab, loosen the four bolts in the cylinder end adjuster and turn the cylinder shaft one way or the other until the rail is parallel with the slab. Re-tighten the four bolts.
8. Make sure the rub strip is against the slab.
9. Using the height adjusting screw, adjust the height to the required distance from the top of the slab to the center of the hole.
10. Hole Depth – Remove the slider lock pin using the feed lever. Feed the drill bit tight against the slab. Measure from the end of the drill stop rod to the stop pad and adjust the depth accordingly.
11. Make sure that the regulator is set between 18-22 PSIG.
12. Using the drill control valve, drill the hole until the stop rod is against the stop pad. Measure the actual hole depth and adjust the stop rod accordingly.
13. You are now ready to start drilling.

### Recommended Lubricants

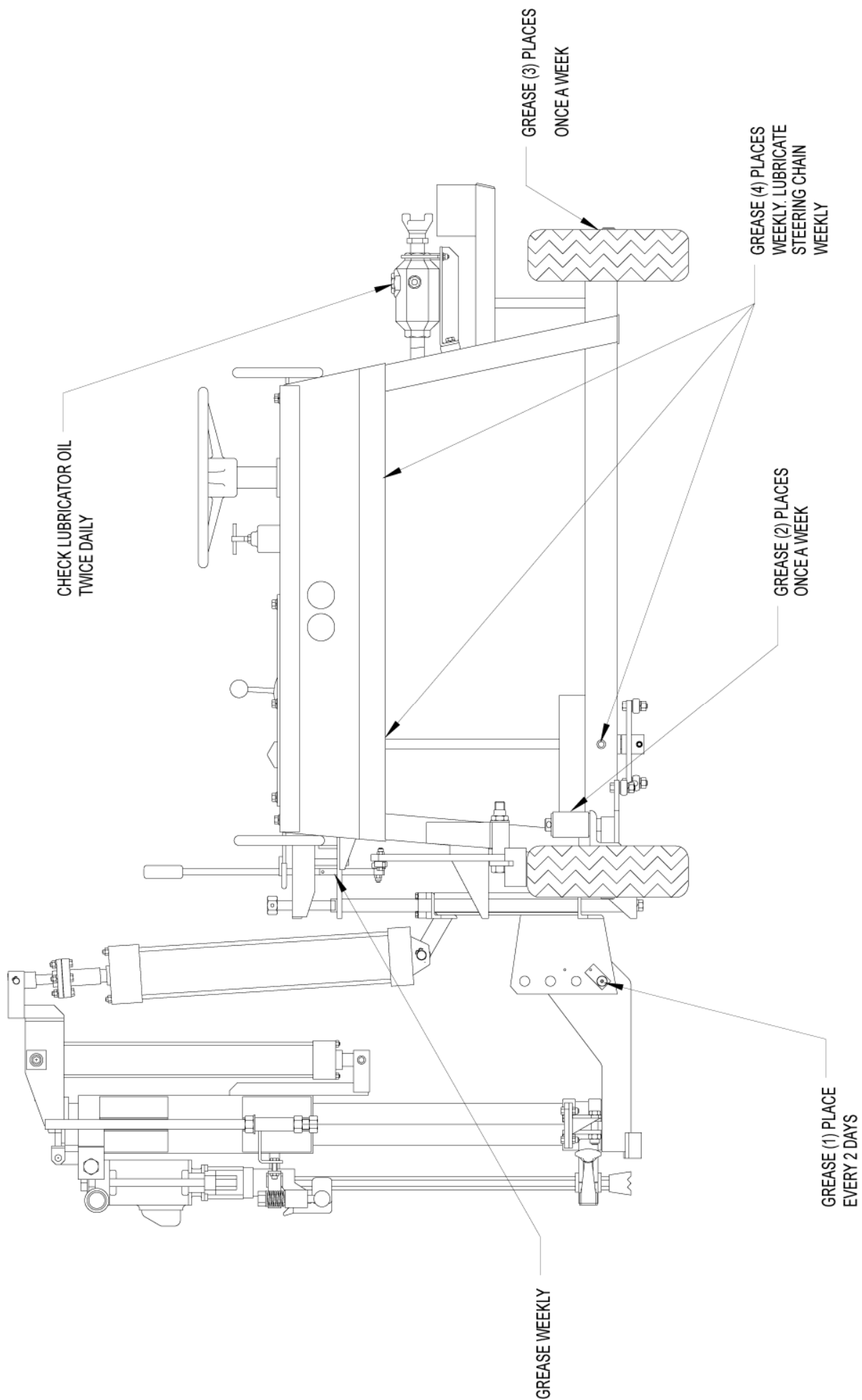
Supplier	Ambient Temperature (Equivalent SAE)		
	Below 4°C (SAE 10W)	4° - 36° (SAE 20, 30)	Above 36° (SAE 40)
AGIP Product		Rock Drill RD100	
Caltex Product	RPM Vistac Oil 32X or Rock Drill Lube 46	RPM Vistac Oil 100X	RPM Vistac Oil 320X
Texaco Product	Rock Drill Lube 46	Rock Drill Lube 100	Rock Drill Lube 320
Chevron Product	Vistac Oil 32X	Vistac Oil 100X	Vistac Oil 320X
Mobil Product	Almo Oil No. 1	Almo Oil No. 2	Almo Oil No. 5
Shell		Shell Tona Oil R100	Shell Tona Oil R320 (150)
<b>***DO NOT USE ENGINE OIL, DIESEL OR HYDRAULIC FLUID***</b>			

# A-1C A-2C Operation Procedure

1. Lubricator – Make sure that the lubricator is full. See recommended lubricants.
2. Air Supply – Use a 3/4" hose to supply air to the drill unit.
3. Install the drill steel and bit into the drill.
4. Make sure that the air compressor is on.
5. Position the drill where the first hole is to be drilled and set the brake.
6. Remove the rail locking pin.
7. Lower the rail to the horizontal drilling position.
8. Make sure the rub strip is against the slab.
9. Using the feed control valve, feed the bit against the slab.
10. Using the drill control valve, turn the drill on and drill until the stop rod is against the stop pad.
11. Using the drill control valve, turn the drill off and then using the feed control valve, retract the drill from the hole.  
**NOTE:** If the bit will not retract from the hole, feed the drill back into the hole and turn the drill on. With the drill running use the feed control valve and retract the drill. Immediately shut the drill off once the bit is clear of the hole.  
**DO NOT HIT THE DRILL SLIDER TO RETRACT THE BIT FROM THE HOLE. THIS WILL DAMAGE THE SLIDER!**
12. Once the hole is drilled, disengage the brake and move the unit to the next hole location, engage the brake, and then repeat steps 8 – 11.



# A1C & A2C MAINTENANCE & LUBRICATION CHART



IPM1081-1

## ***TROUBLE SHOOTING AIR DRILL***

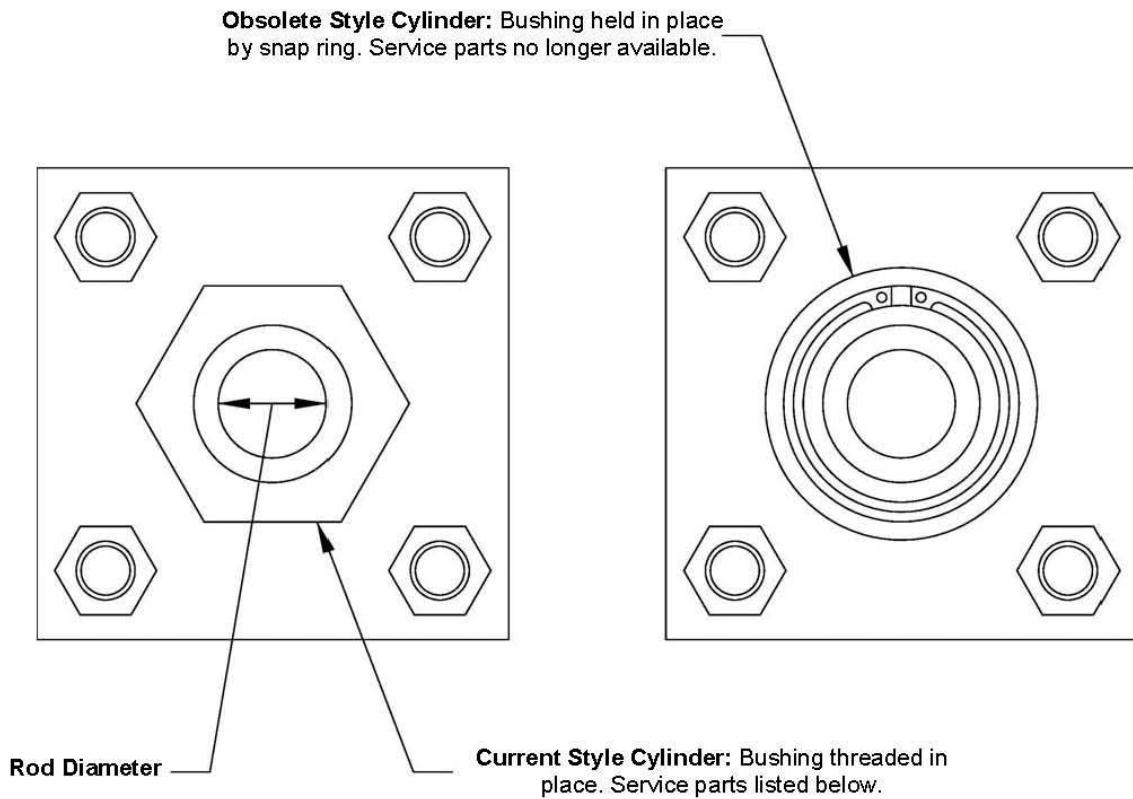
IF SYMPTOMS OF POOR PERFORMANCE DEVELOP, THE FOLLOWING CHART CAN BE USED AS A GUIDE TO DETERMINE THE PROBLEM. WHEN DIAGNOSING FAULTS IN OPERATION OF THE AIR DRILL, ALWAYS CHECK THAT THE COMPRESSOR IS SUPPLYING THE CORRECT SCFM AND AIR PRESSURE AS LISTED IN THE TABLE

<b><i>PROBLEM</i></b>	<b><i>CAUSE</i></b>	<b><i>REMEDY</i></b>
DRILL DOES NOT RUN	DRILL NOT GETTING AIR	<ol style="list-style-type: none"> <li>1. ON MULTI DRILL UNITS, SWITCH AIRLINE WITH DRILL THAT IS WORKING PROPERLY. IF DRILL NOW RUNS CHECK THE AIR CONTROL VALVE. IF THE VALVE WORKS, CHECK THE DRILL.</li> <li>2. CHECK VALVE ON AIR COMPRESSOR AND DRILL UNIT TO BE CERTAIN THEY ARE COMPLETELY OPEN.</li> <li>3. CHECK COMPRESSOR. IT SHOULD HAVE 100SCFM (47.2Dm³/sec) PER DRILL AND 110PSI (7.6BAR) AT DRILL MANIFOLD WHEN DRILLING WITH LARGE DRILLS.</li> <li>4. MAKE CERTAIN ALL FITTINGS ARE CONNECTED PROPERLY AND NOT LEAKING.</li> </ol>
	COUPLING OR HOSE OBSTRUCTION	REMOVE OBSTRUCTION.
	FAILURE IN THE ELECTRICAL CIRCUIT	CHECK SWITCHES, CONNECTIONS, COILS, GROUND & VOLTAGE. IF THE POWER UNIT (BACKHOES, GRADER, ETC.) IS BEING JUMP STARTED, CHECK THE AMPS & VOLTAGE BEING SUPPLIED TO COILS FROM THE BATTERY, IT MAY BE TOO LOW.
	FAILURE OF DRILL SOLENOID VALVE (MULTI DRILL UNITS WITH REMOTE ELECTRICAL CONTROLS)	CHECK VALVE - YOU SHOULD BE ABLE TO FEEL THE SOLENOID MOVE WHEN IT IS ACTUATED. MAKE SURE YOU HAVE CURRENT TO THE SOLENOID COIL. REPLACE THE SOLENOID IF THERE IS NO MOVEMENT.
	MECHANICAL FAILURE OF DRILL	DISASSEMBLE THE DRILL & INSPECT IT FOR DAMAGED PARTS.

# TROUBLE SHOOTING AIR DRILL

<b>PROBLEM</b>	<b>CAUSE</b>	<b>REMEDY</b>
DRILL RUNS SLOW OR DOES NOT DRILL EFFECTIVELY	NOT ENOUGH AIR REACHING DRILL. IT SHOULD HAVE 100SCFM (47.2dm <sup>3</sup> /sec) PER DRILL AND 110 PSI (7.6 Bar) AT DRILL MANIFOLD WHEN DRILLING WITH LARGE DRILLS	ON MULTI DRILL UNITS, TURN OFF ONE OR TWO DRILLS. IF THE REMAINING DRILLS PICK UP SPEED, CHECK THE AIR COMPRESSOR.
	RESTRICTION IN AIR LINE	A FOREIGN OBJECT IN THE AIR LINE OR POSSIBLY A REDUCTION IN THE AIR LINE CAUSED BY A REDUCER FITTING.
	TOO SMALL AIR LINE	FOLLOWING ARE SUPPLY LINE SIZES FOR DRILLING: A-1 SINGLE DRILL 3/4" (19mm) A-2 TWO DRILLS 1-1/4" (31.75mm) A-3 & A-4 THREE & FOUR DRILLS 1-1/2" (38.1mm) A-5 FIVE DRILLS 2" (50.8mm)
	AIR PRESSURE TO CYLINDER "FEEDING" DRILL INTO CONCRETE NOT ADJUSTED PROPERLY	EXCESSIVE PRESSURE CAN CAUSE DRILL TO "BIND UP" IN THE HOLE. PRESSURE THAT IS TOO LOW WILL NOT "FEED" THE DRILL INTO THE CONCRETE. THE AIR PRESSURE REQUIRED VARIES WITH THE DRILL MODEL.  HORIZONTAL – ALL UNITS WITH LARGE DRILLS USE 22-26 PSI (1.5-1.8 Bar). DRILL UNITS USING THE 15LB (6.8kg) CLASS DRILL WILL USE 16-20 PSI (1.1-1.4 Bar).  VERTICAL – ALL DRILL UNITS USE 5-6 PSI (0.34-0.41 Bar). WITH THE CORRECT AIR PRESSURE, THE DRILL STEEL SHOULD HAVE A SLIGHT RATTLE.
	INSUFFICIENT AIR FLOW TO KEEP HOLE BLOWN CLEAN	CHECK FOR OBSTRUCTION IN THE BLOW TUBE IN THE DRILL.
	LUBRICATOR PUTTING OUT TOO MUCH OIL TO DRILL	IF YOU NOTICE MORE THAN A LIGHT FILM OF OIL ON THE AIR DEFLECTOR ON THE BOTTOM OF THE DRILL, ADJUST THE LUBRICATOR. MAKE CERTAIN YOU ARE USING THE TYPE OF OIL CALLED FOR IN THE OPERATION AND MAINTENANCE MANUAL.
	MECHANICAL BINDING OF DRILL CARRIER	MAKE SURE THE EIGHT BEARING PADS ARE ADJUSTED CORRECTLY. THE SQUARE TUBE THAT THE DRILL CARRIER SLIDES ON MUST BE FREE OF RUST SO THAT THE CARRIER SLIDES FREELY. DRILL STEEL MUST NOT BE BINDING IN THE GUIDE BEARING.
	BENT DRILL STEEL, WORN DRILL BIT OR DRILLING INTO REBAR	REPLACE THE DRILL STEEL OR BIT. IF DRILLING INTO REBAR, MOVE THE DRILL.
	USING 3 1/4"(8.25cm) SHANK DRILL STEEL IN 4 1/4" (10.8cm) SHANK CHUCK DRILL	THE DRILL STEEL WILL ROTATE BUT IT WILL NOT ALLOW THE DRILL PISTON TO HAMMER PROPERLY. REPLACE IT WITH THE CORRECT 4 1/4" (10.8cm) DRILL STEEL.

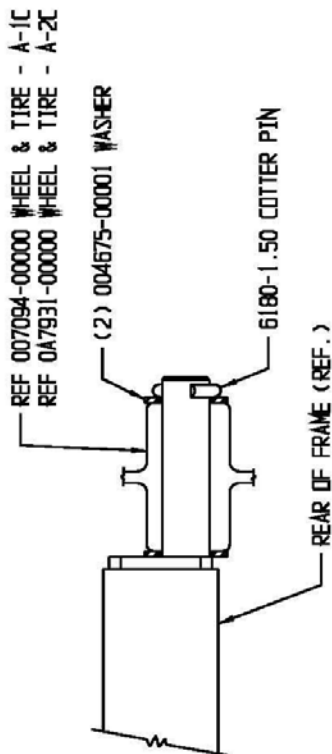
# Cylinder Service Kits



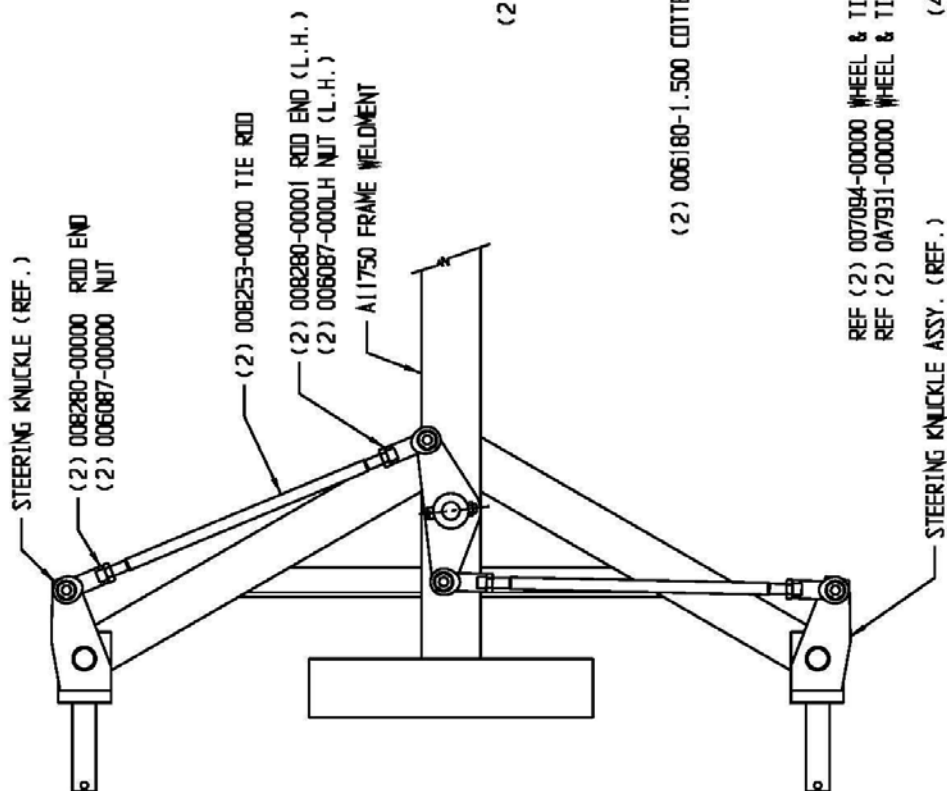
	Oversize Rod Cylinders (Feed)		Standard Rod Cylinders	
	Rod Diameter	Service Kit Part #	Rod Diameter	Service Kit Part #
<b>1.50" (3.81 cm) Bore</b>			5/8" (1.59 cm)	A12899-1.500
<b>2.50" (6.35 cm) Bore</b>	1" (2.54 cm)	A12895-2.500	5/8" (1.59 cm)	A12899-2.500
<b>3.25" (8.26 cm) Bore</b>	1 3/8" (3.49 cm)	A12895.3.250	1" (2.54 cm)	A12899-3.250
<b>4.00" (10.16 cm) Bore</b>			1" (2.54 cm)	A12899-4.000
<b>5.00" (12.70 cm) Bore</b>			1" (2.54 cm)	A12899-5.000
<b>6.00" (15.24 cm) Bore</b>			1 3/8" (3.49 cm)	A12899-6.000
<b>7.00" (17.78 cm) Bore</b>			1 3/8" (3.49 cm)	A12899-7.000

# TIRE AND WHEEL INSTALLATION

MINIATCH P/N 11757



## REAR WHEEL INSTALLATION



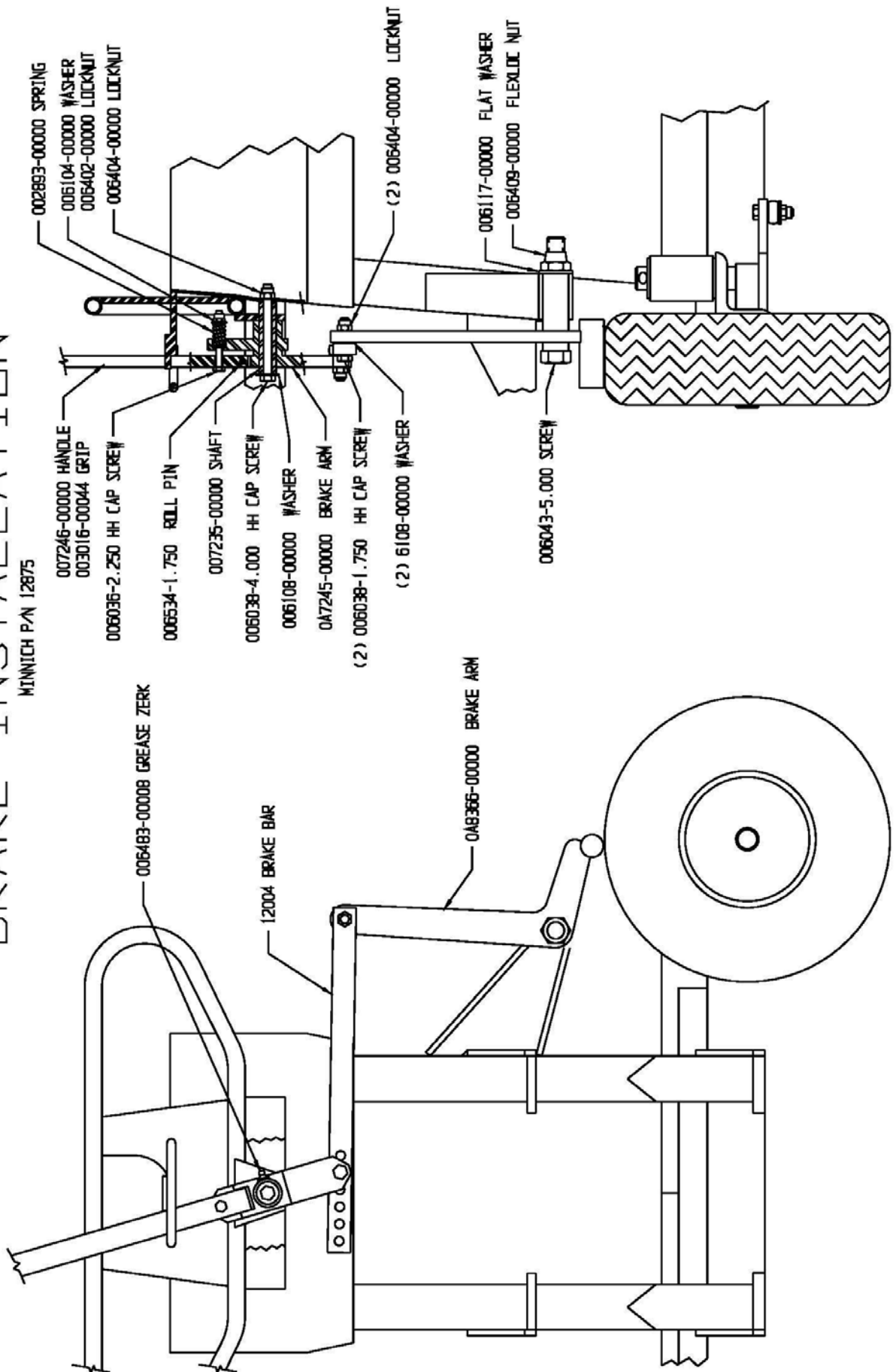
## TIE ROD INSTALLATION

## STEERING KNUCKLE ASSEMBLY



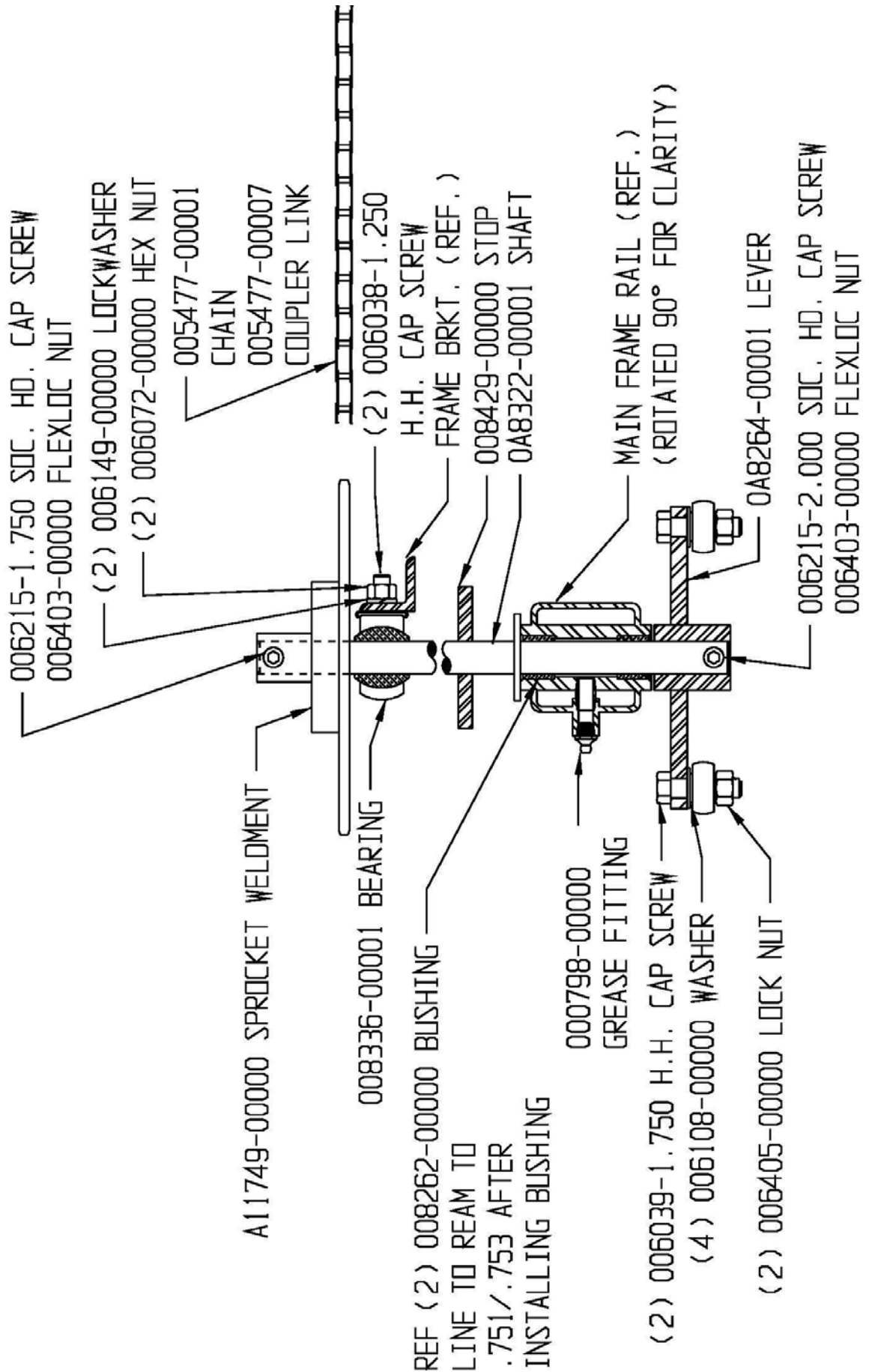
# BRAKE INSTALLATION

MINNICH P/N 12875



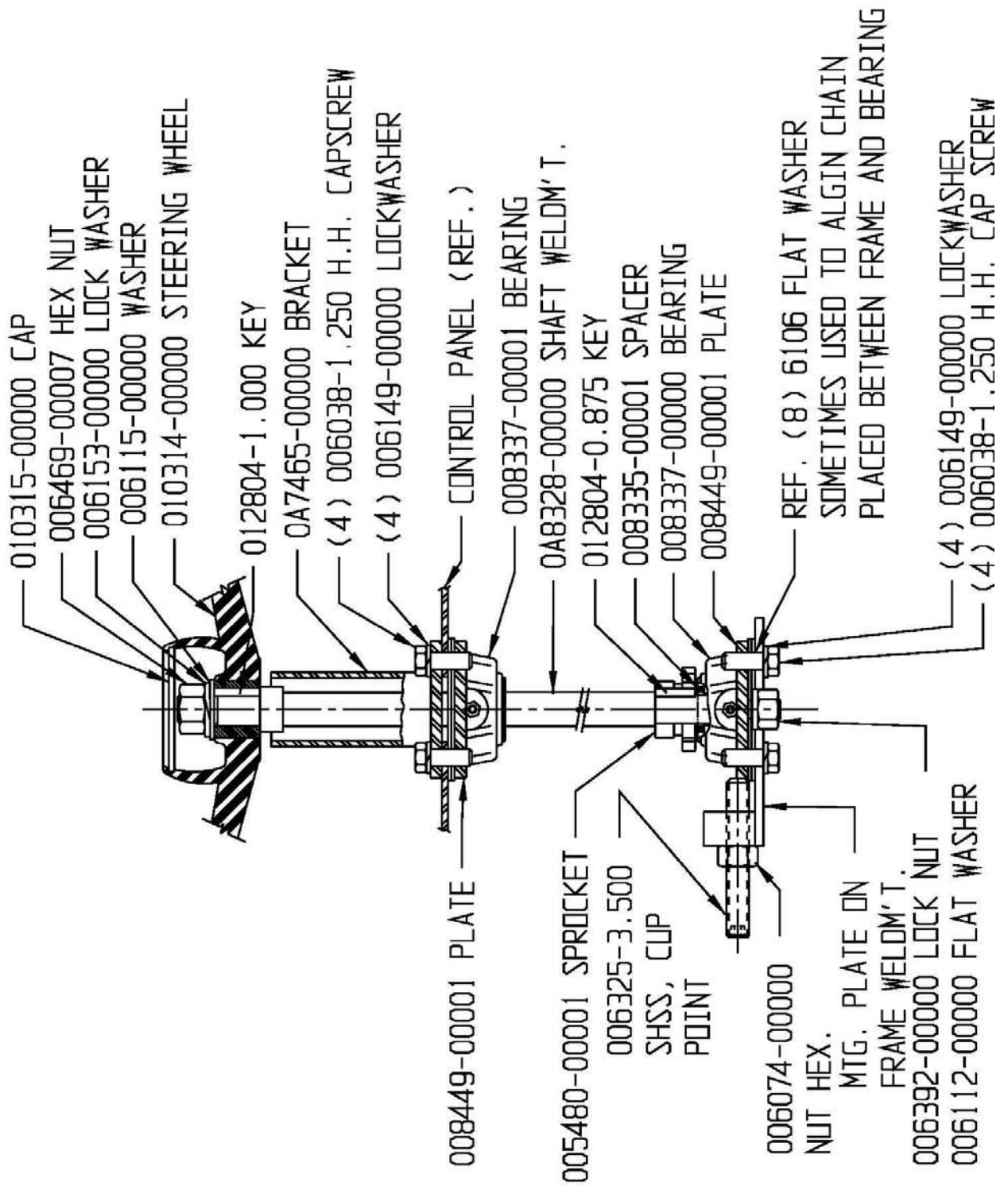
# STEERING SHAFT ASSEMBLY

MINNICH P/N A12874



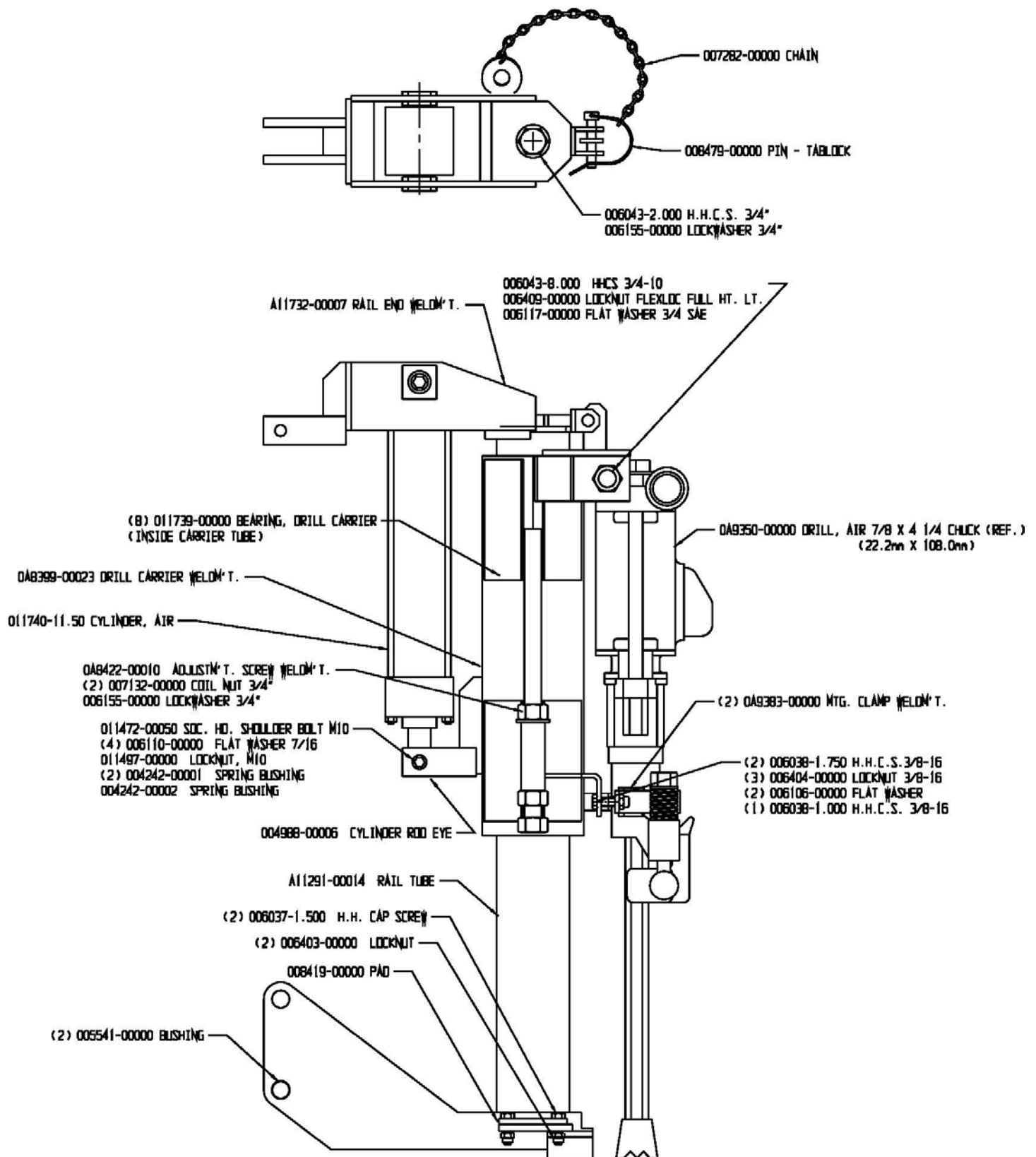
# STEERING COLUMN ASSEMBLY

MINNICH P/N A12873



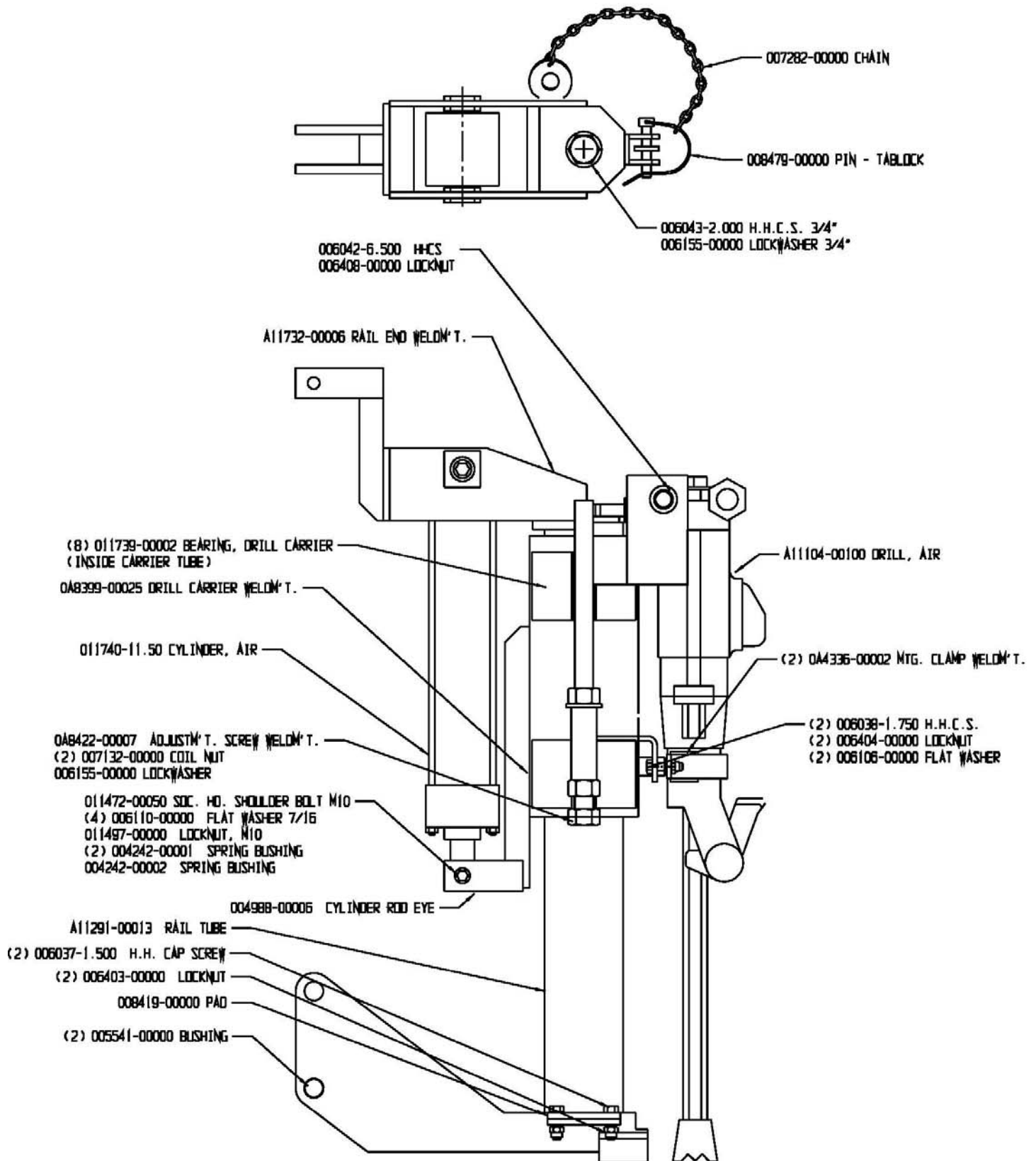
# A-1C-36 RAIL ASSEMBLY

MINNICH P/N A11744-00013



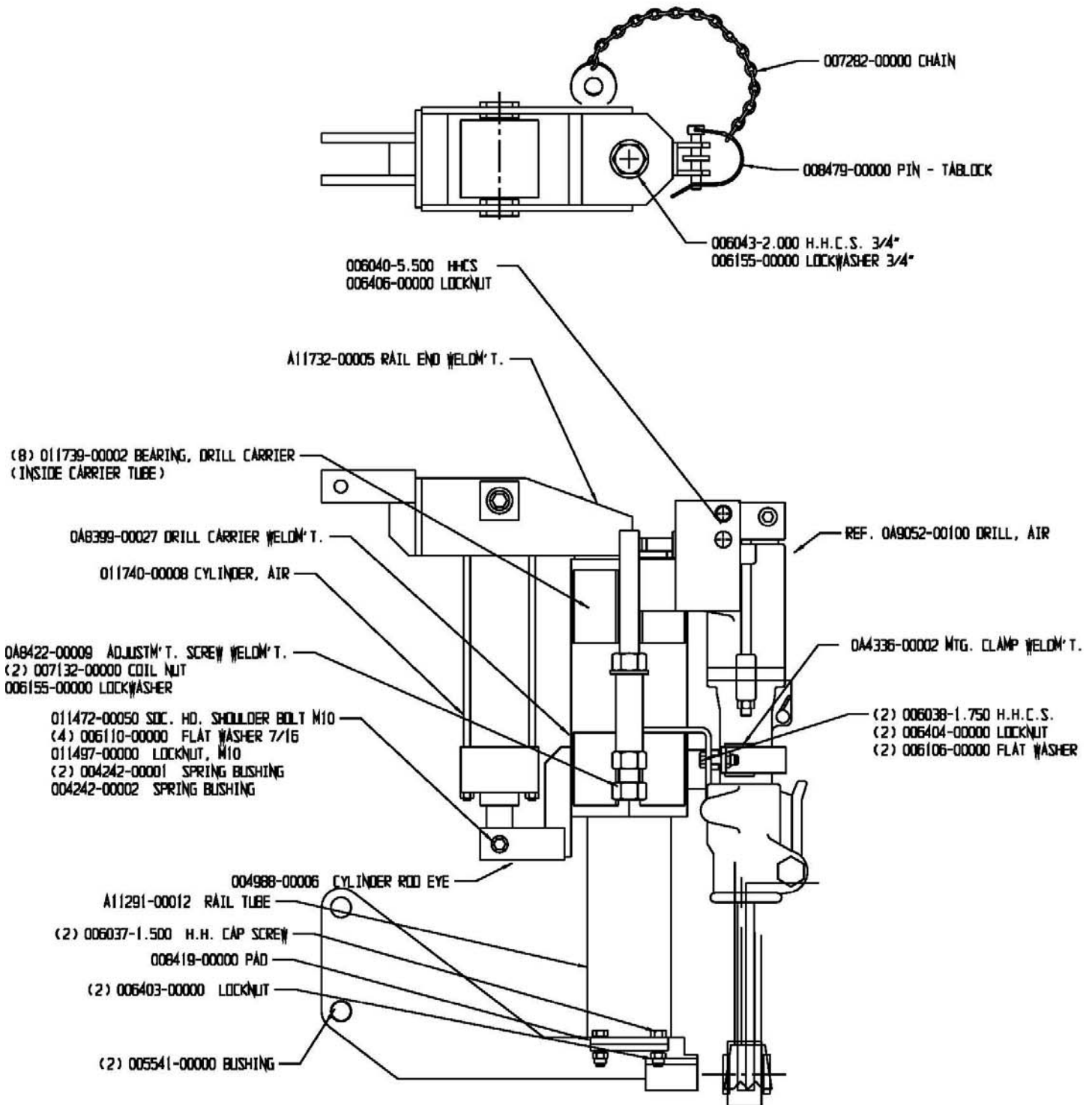
# A-1C-30 RAIL ASSEMBLY

MINNICH P/N A11744-00014



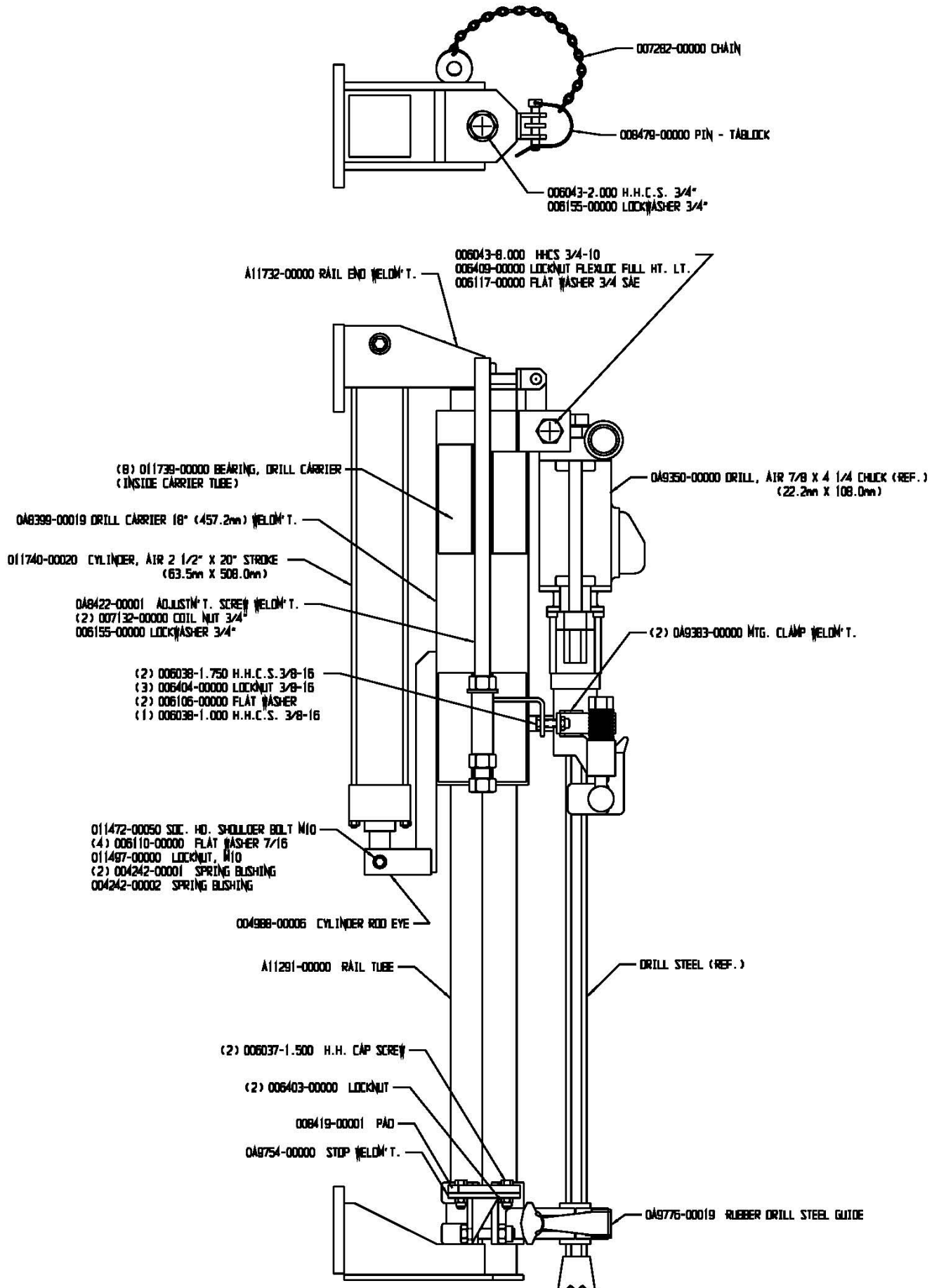
# A-1C-24 RAIL ASSEMBLY

MINNICH P/N A11744-00015



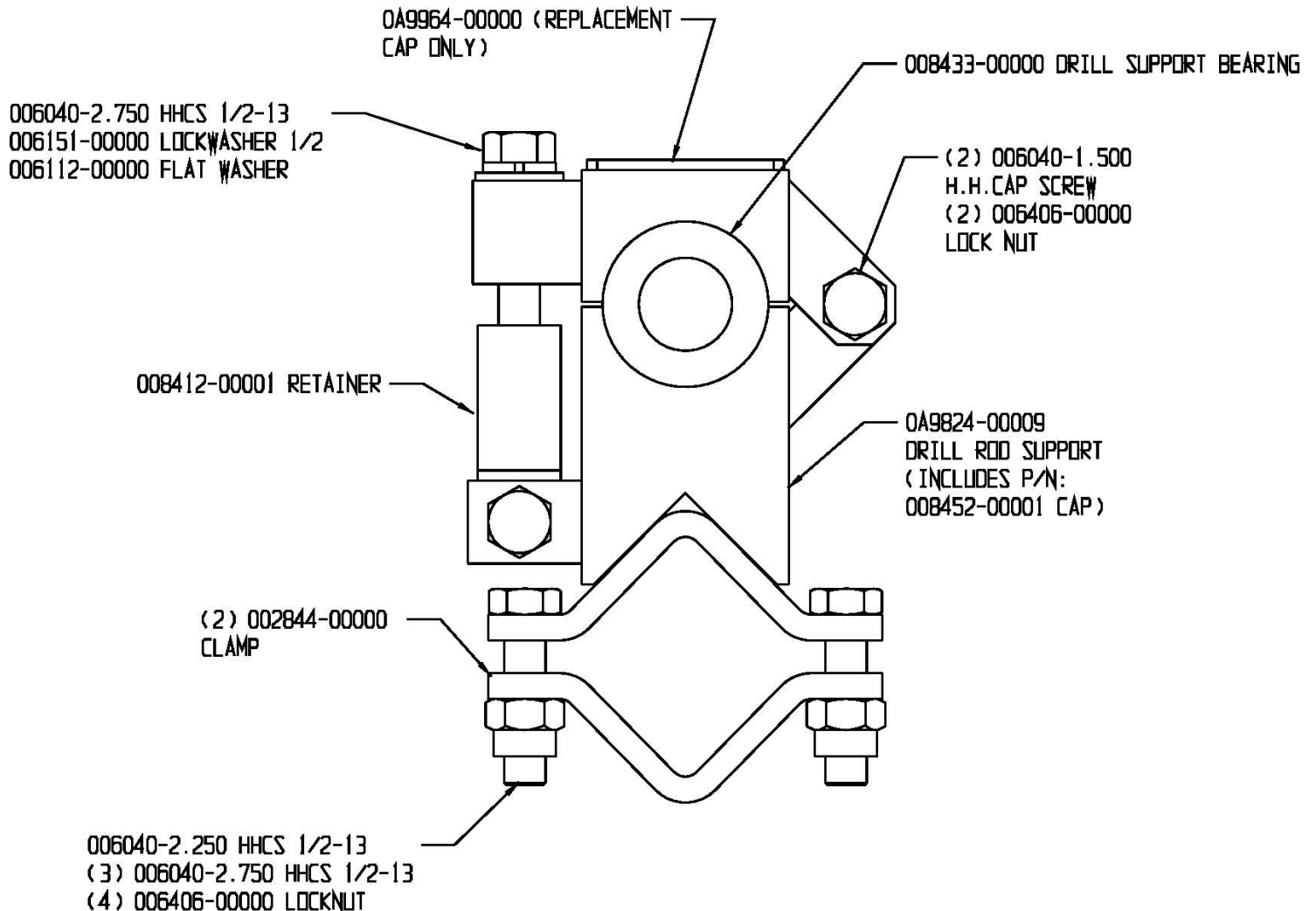
# RAIL ASSEMBLY

MINNICH P/N A11744-00000



# DRILL SUPPORT ASSEMBLY

## MINNICH P/N: 0A9776-00019



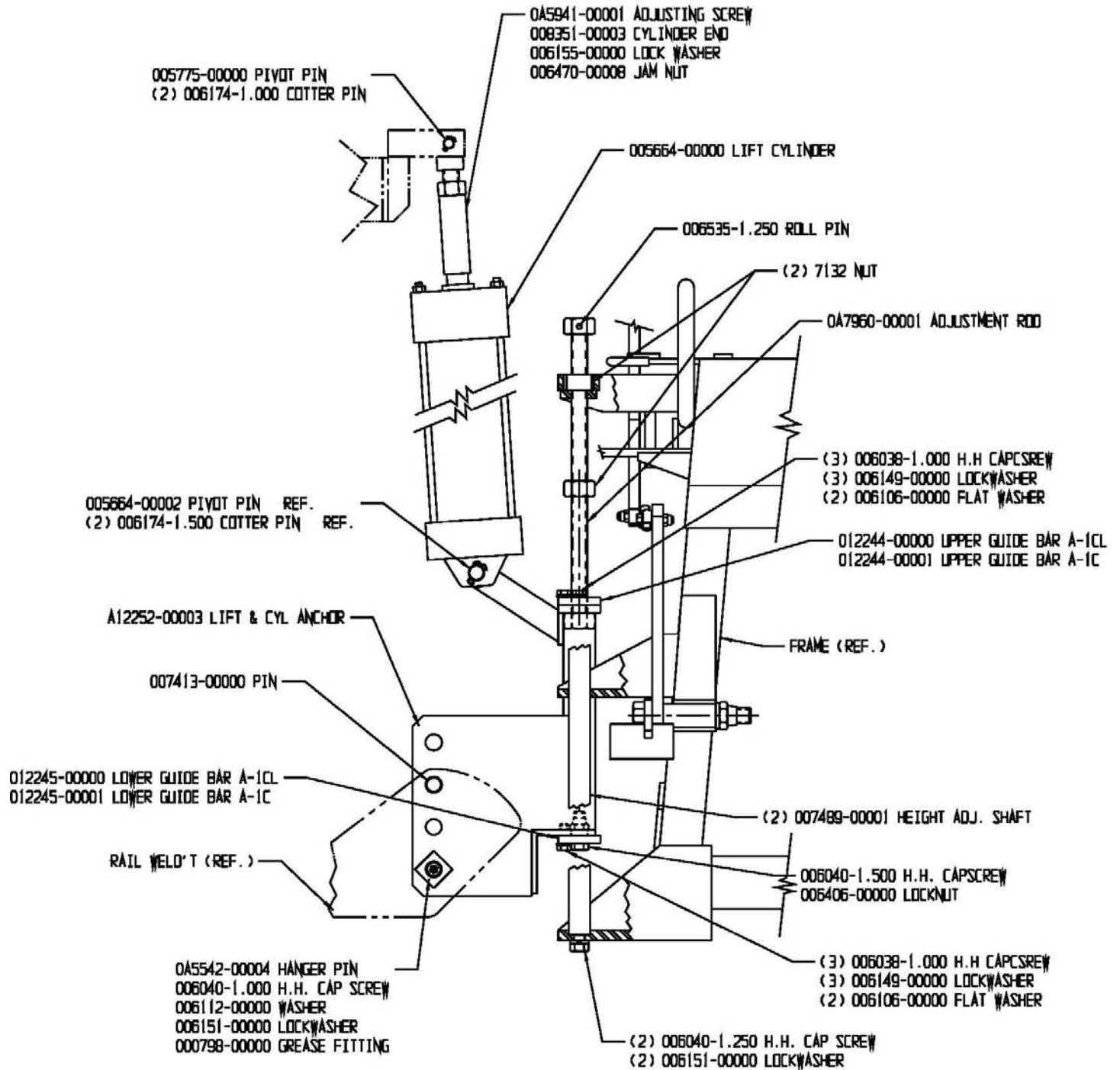
0A8458-00000 KIT CONSISTS OF THE FOLLOWING WITH \*

- \*008433-00000 SPLIT BEARING - USED FOR ALL BITS 1-1/8" (28.6mm) & LARGER
- \*008433-00001 SPLIT BEARING - USED FOR ALL 1" (25.4mm) & 1-1/16" (17.0mm) BITS
- \*008433-00002 SPLIT BEARING - USED FOR ALL 7/8" (22.2mm) DIA. BITS
- \*008433-00003 SPLIT BEARING - USED FOR ALL 3/4" (19.1mm) DIA. BITS
- \*008433-00004 SPLIT BEARING - USED FOR ALL 5/8" (15.9mm) DIA. BITS
- 008433-00005 SPLIT BEARING - USED FOR ALL 1" (25.4mm) HEX STEEL BITS



# A-1C/A-1CL-48 LIFT GROUP INSTALLATION

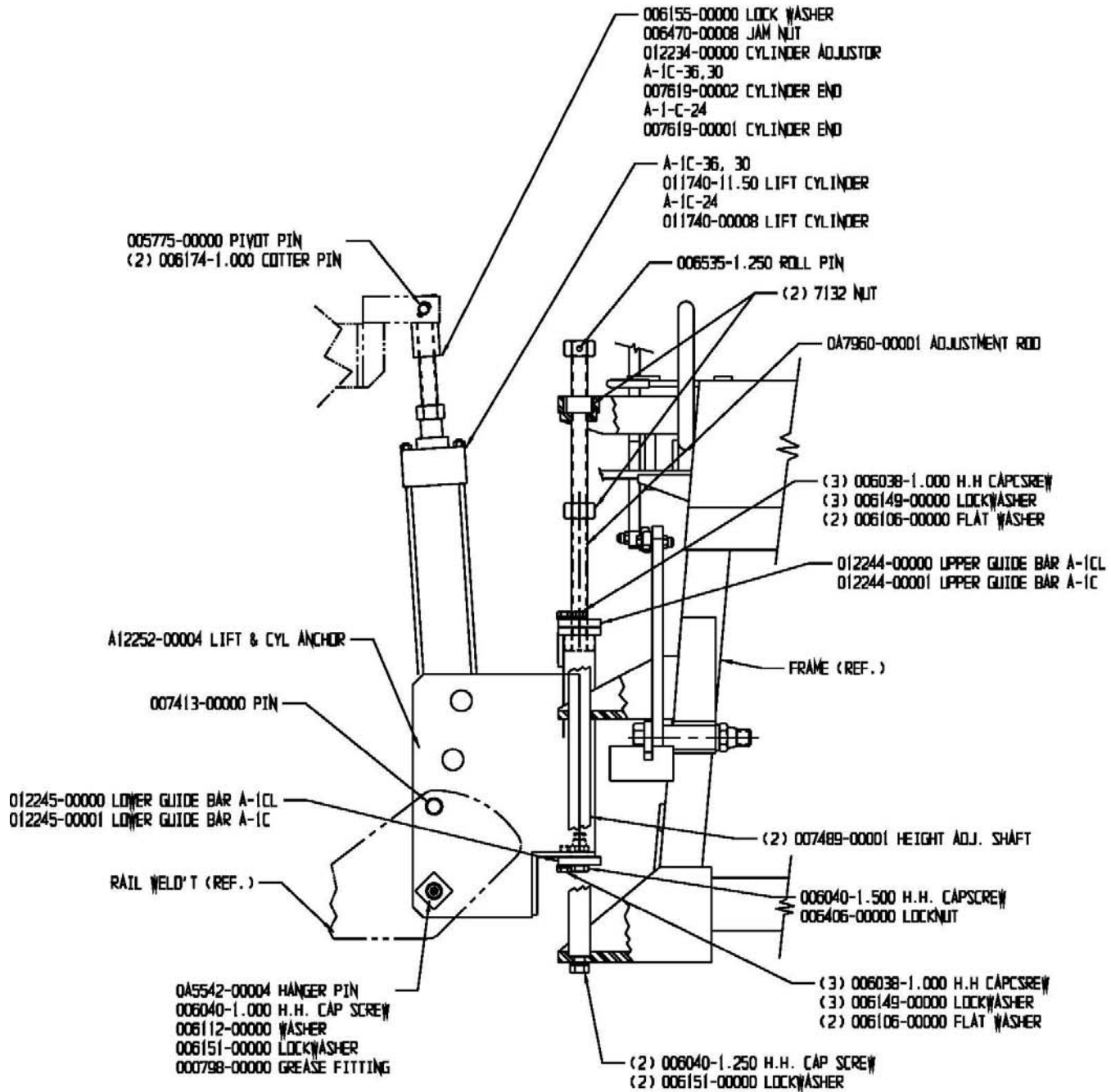
MINNICH P/N A10703-00003 A-1CL  
MINNICH P/N A10703-00006 A-1C



# A-1C/A-1CL-36, 30, 24 LIFT GROUP INSTALLATION

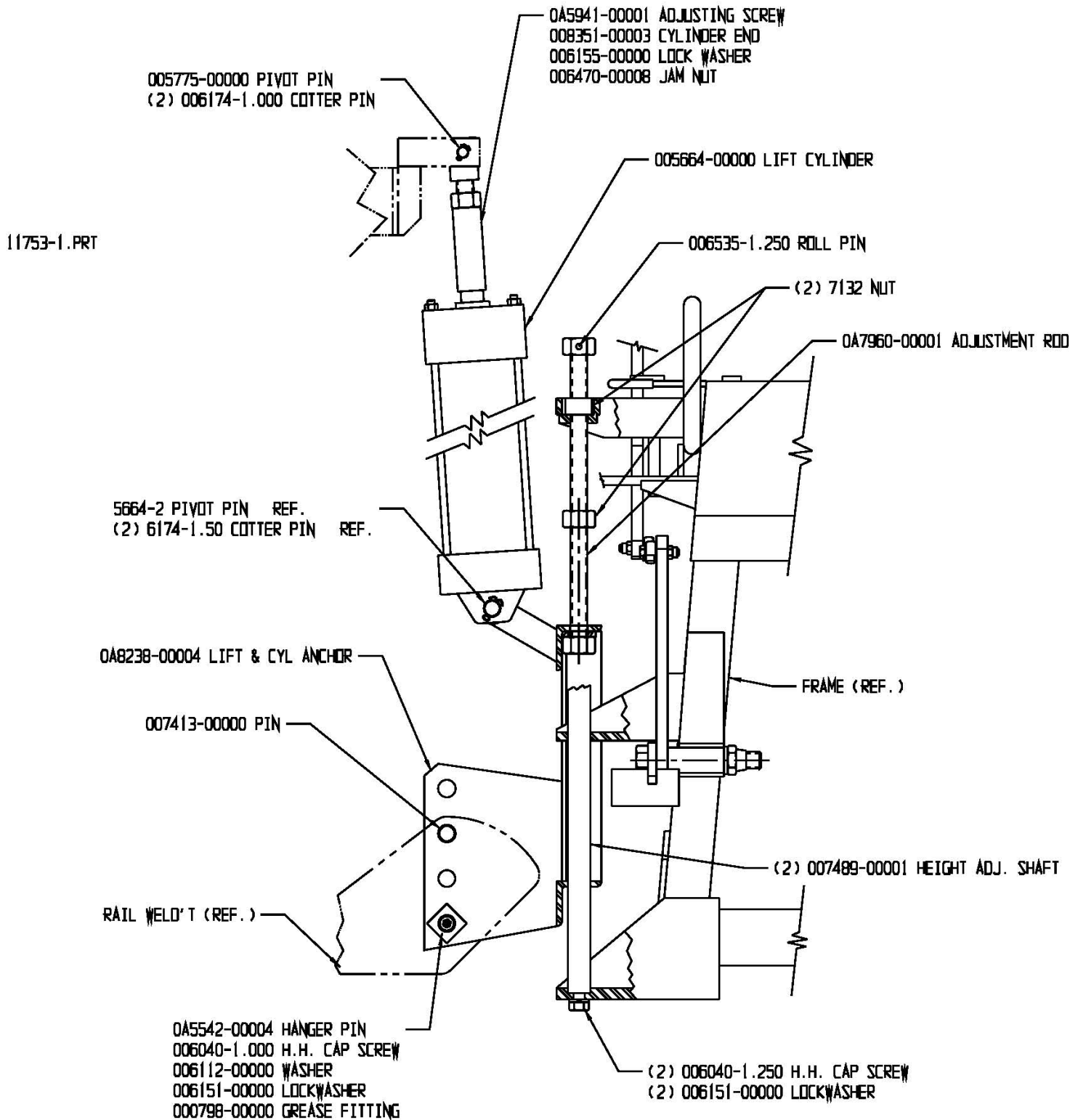
MINNICH P/N A-1CL A10703-00004 & A10703-00005

MINNICH P/N A-1C A10703-00007 & A10703-00008



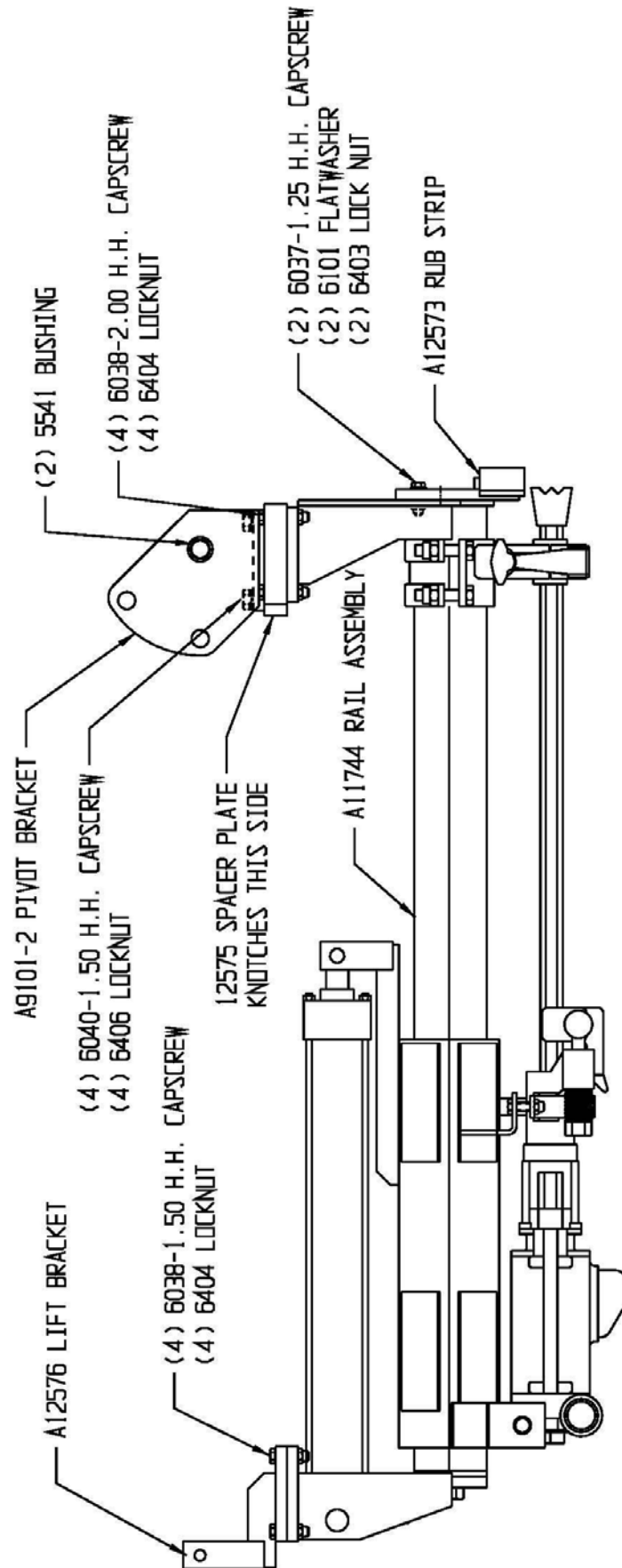
# A-2C LIFT GROUP INSTALLATION

MINNICH P/N A11753-00001

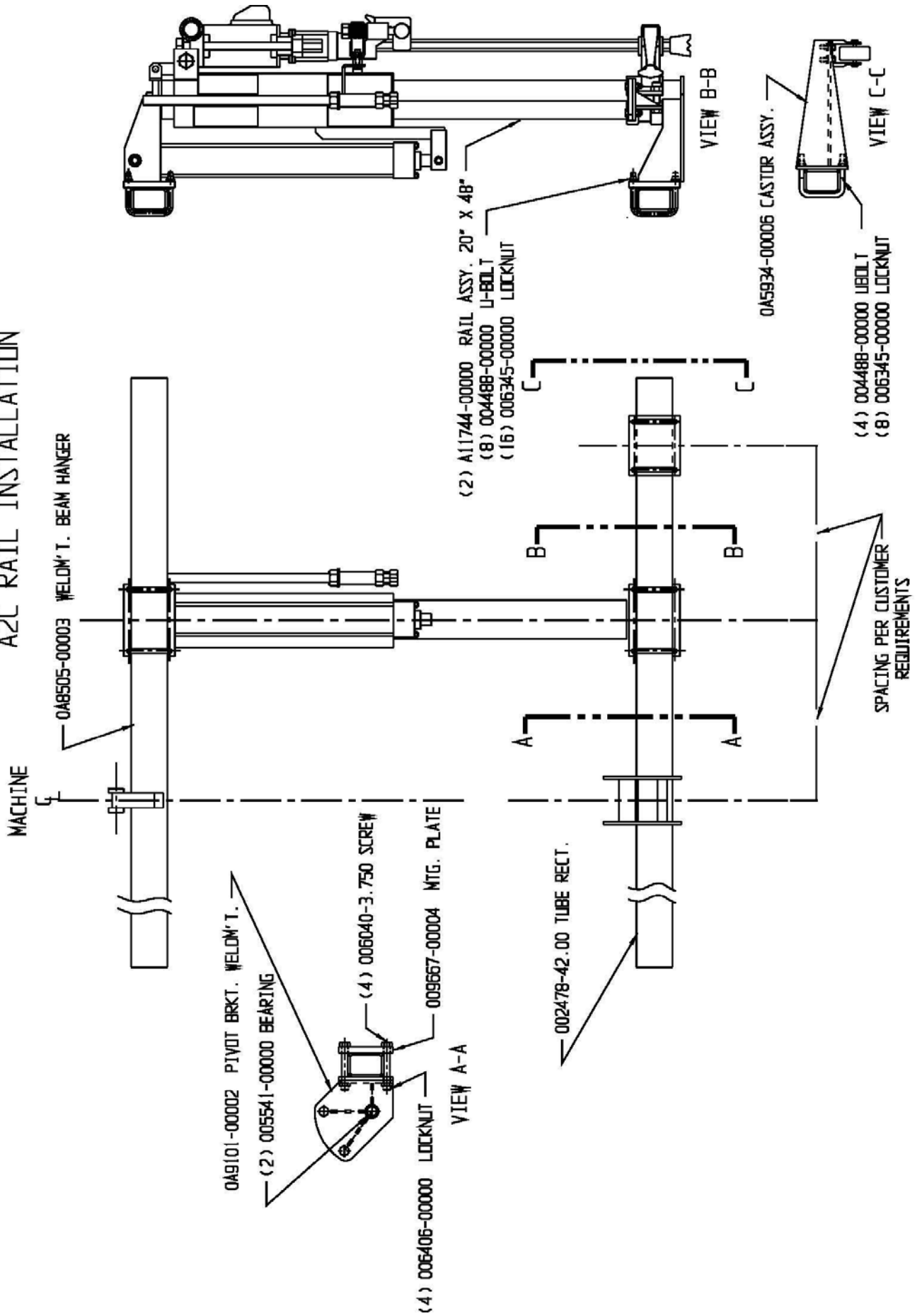


# A-1C-48 RAIL INSTALLATION

MINNICH P/N: A8592-13



# A2C RAIL INSTALLATION



# A2C CASTER ASSEMBLY

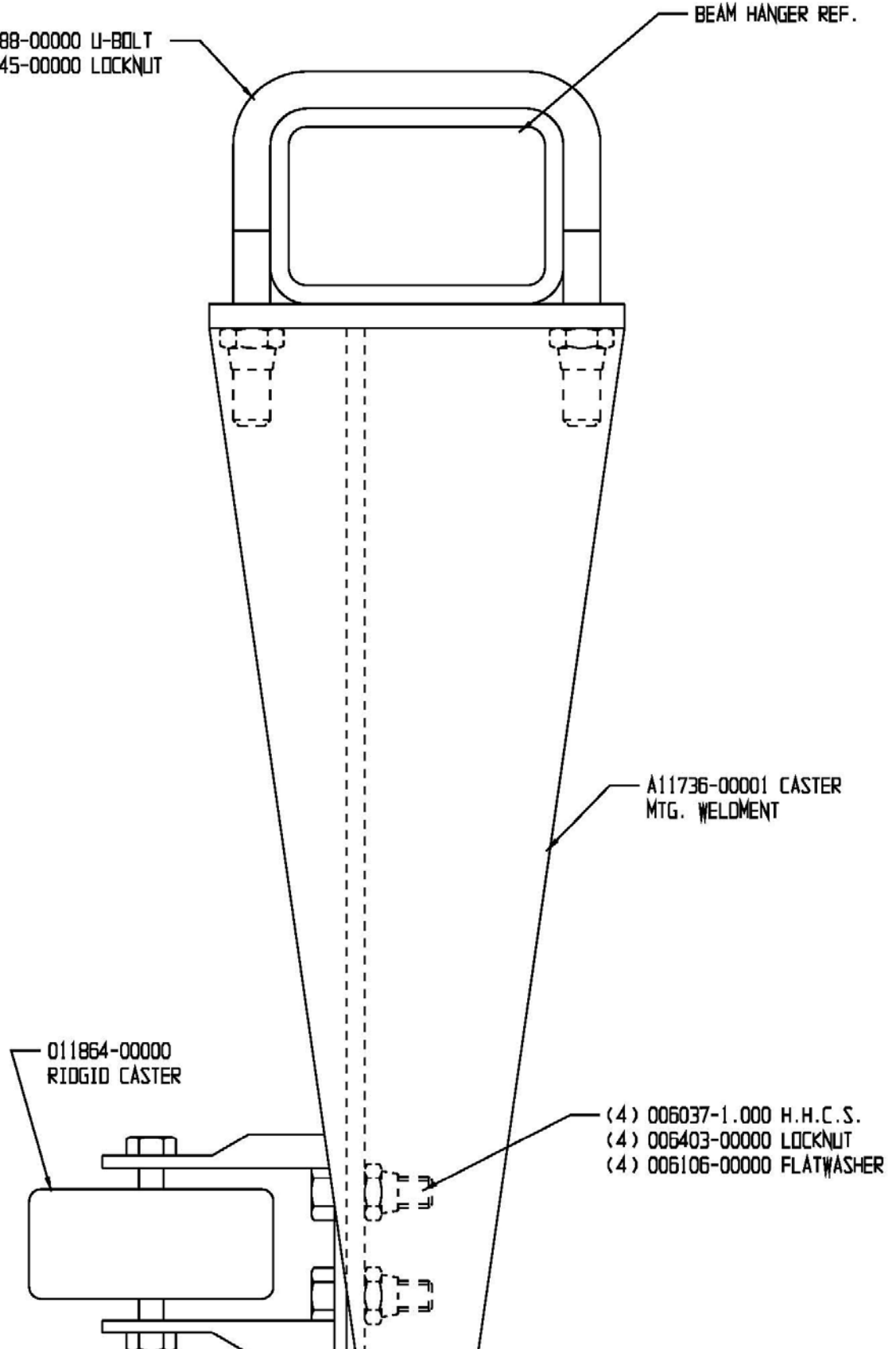
MINNICH P/N 0A5934-00006

NOTE: CASTER ASSEMBLY IS FOR (2) OF THE ASSEMBLIES SHOWN BELOW

REF. (2) 004488-00000 U-BOLT  
REF. (4) 006345-00000 LOCKNUT

BEAM HANGER REF.

5934-6.PRT









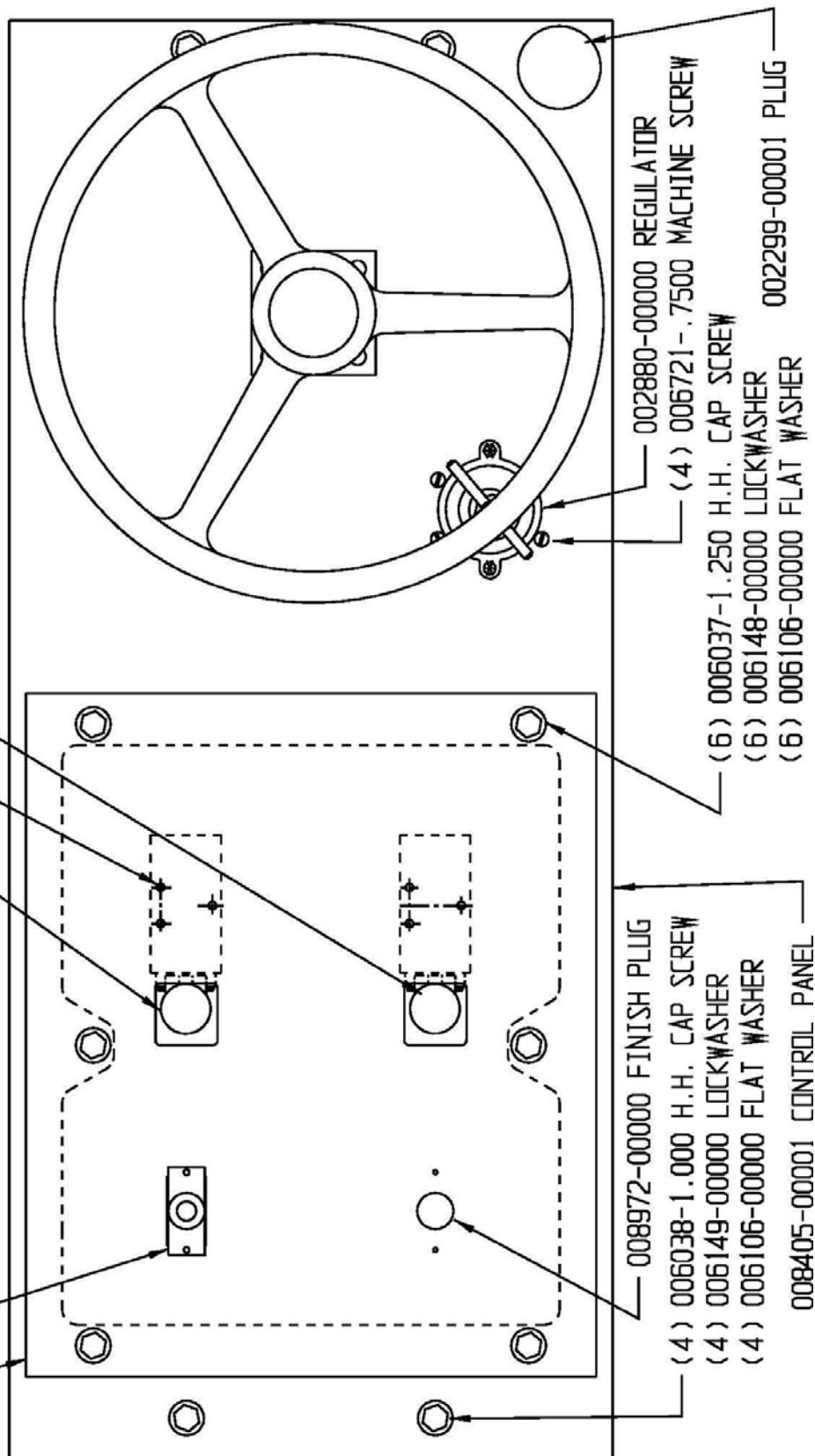
# A1C CONTROL PANEL ASSEMBLY

11190A.prt

MINNICH P/N A11190-00000

NOT SHOWN:  
007059-00000 GAUGE  
007059-00002 CLAMP  
LINE PRESSURE  
007059-00001 GAUGE  
007059-00002 CLAMP  
FEED PRESSURE

011214-00000 PANEL  
010917-00000 DRILL VALVE  
011199-00000 SWITCH GUARD  
011198-00000 COVER TOGGLE  
(2) 006262-00001 DRIVE SCREW  
010935-00000 FEED VALVE  
(6) 006256-1.500 SCREW  
(6) 006653-00000 NUT  
(6) 006144-00000 LOCKWASHER  
010936-00000 LIFT VALVE

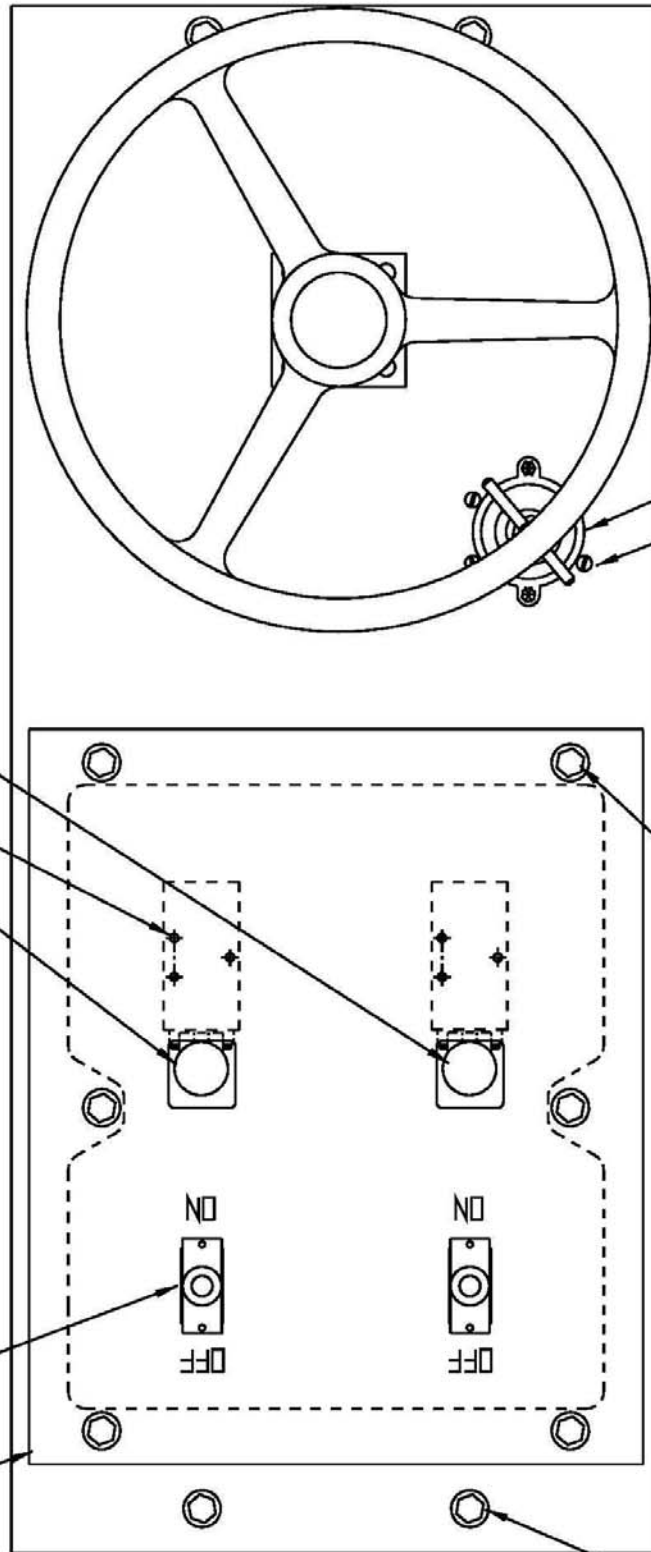


# A2C CONTROL PANEL ASSEMBLY

MINNICH P/N A11191A

NOT SHOWN:  
 007059-00000 GAUGE  
 007059-00002 CLAMP  
 LINE PRESSURE  
 007059-00001 GAUGE  
 007059-00002 CLAMP  
 FEED PRESSURE

011214-00000 PANEL  
 (2) 010917-00000 DRILL VALVE  
 (2) 011199-00000 SWITCH GUARD  
 (2) 011198-00000 COVER TOGGLE  
 (4) 006262-00001 DRIVE SCREW  
 010935-00000 FEED VALVE  
 (6) 006256-1.500 SCREW  
 (6) 006553-00000 NUT  
 (6) 006144-00000 LOCKWASHER  
 010936-00000 LIFT VALVE

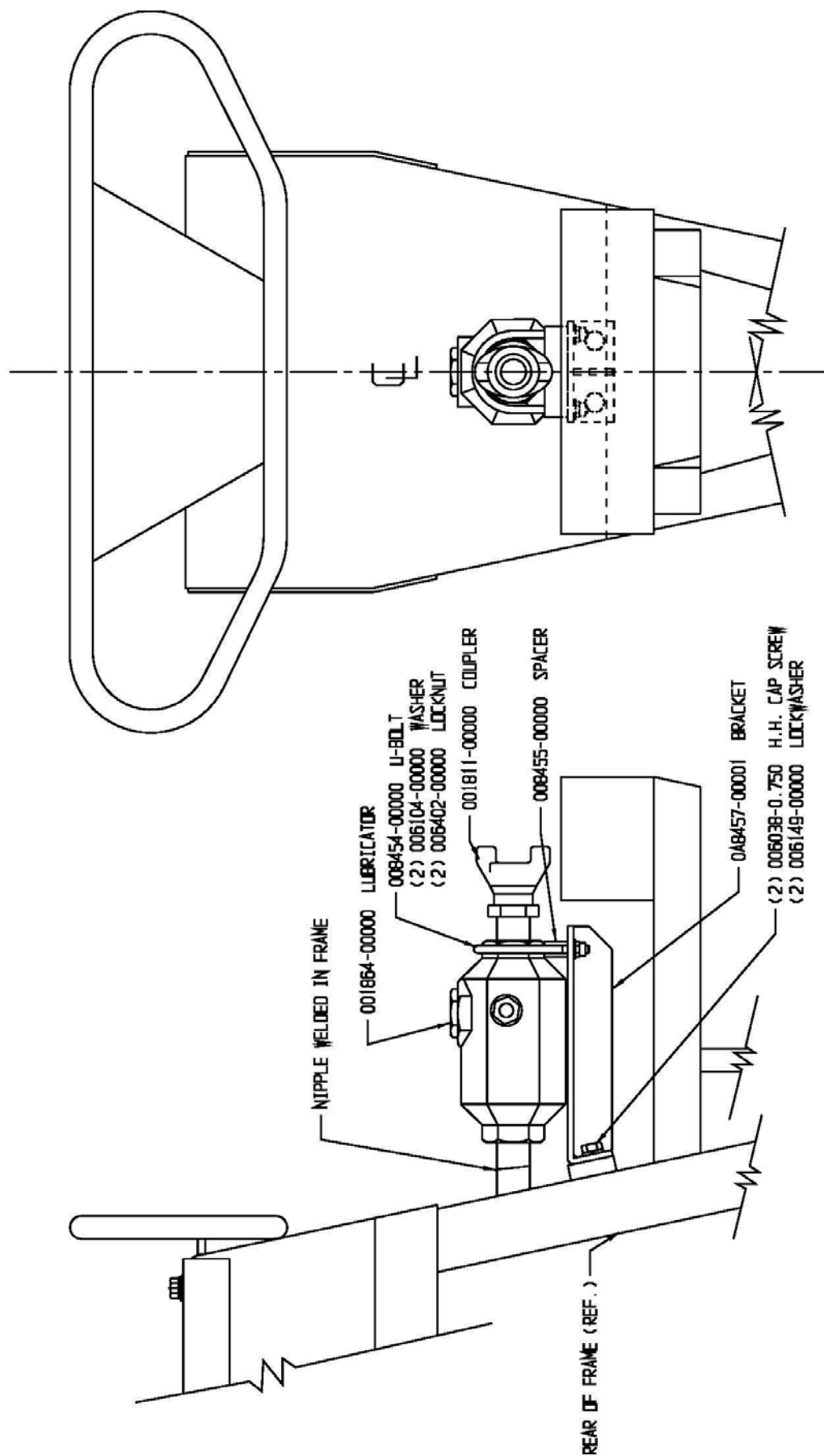


(4) 006038-1.000 H.H. CAP SCREW  
 (4) 006149-00000 LOCKWASHER  
 (4) 006106-00000 FLAT WASHER  
 008405-00001 CONTROL PANEL  
 (6) 6037-1.25 H.H. CAP SCREW  
 (6) 6148 LOCKWASHER  
 (6) 6106 FLAT WASHER  
 (6) 10793-1 GAGE NUT  
 002880-00000 REGULATOR  
 (4) 006721-0.750 MACHINE SCREW

11191A.prt

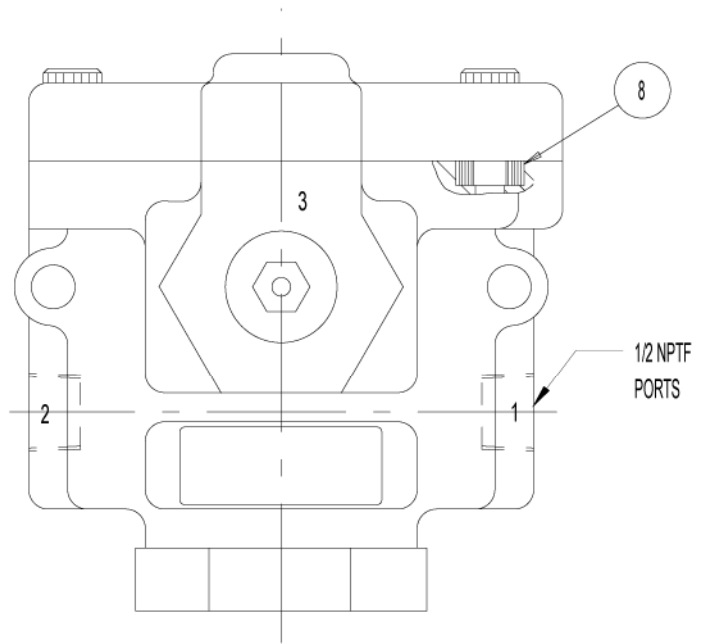
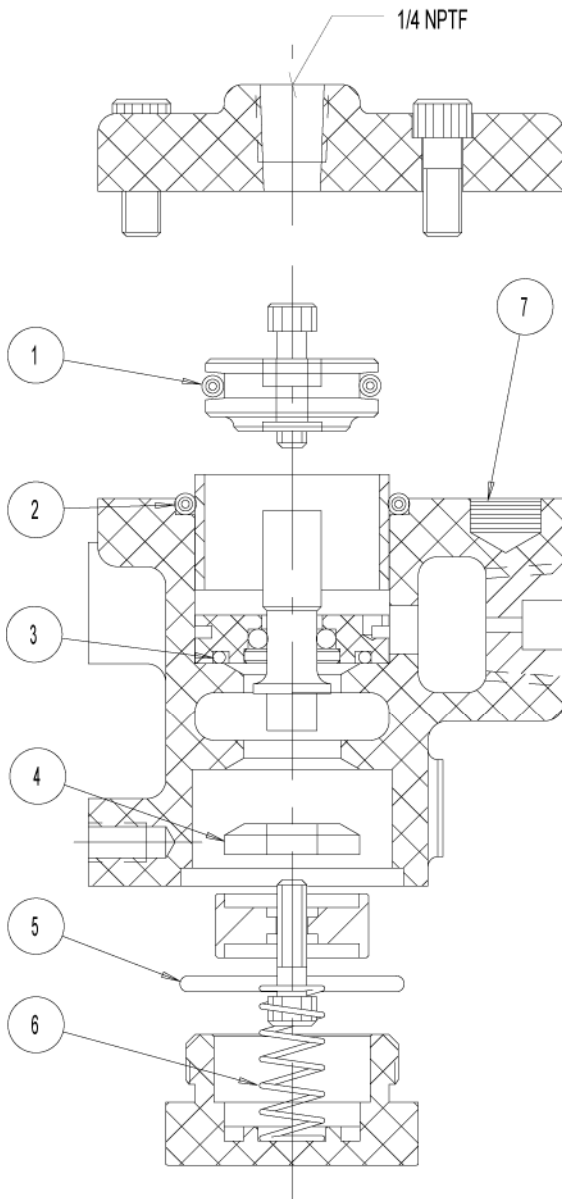
11190C.PRT

# A1C LUBRICATOR INSTALLATION

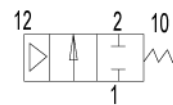


# VALVE (DRILL)

MINNICH P/N 010925-00000



SCHEMATIC:



SERVICE KIT # 010925-00001

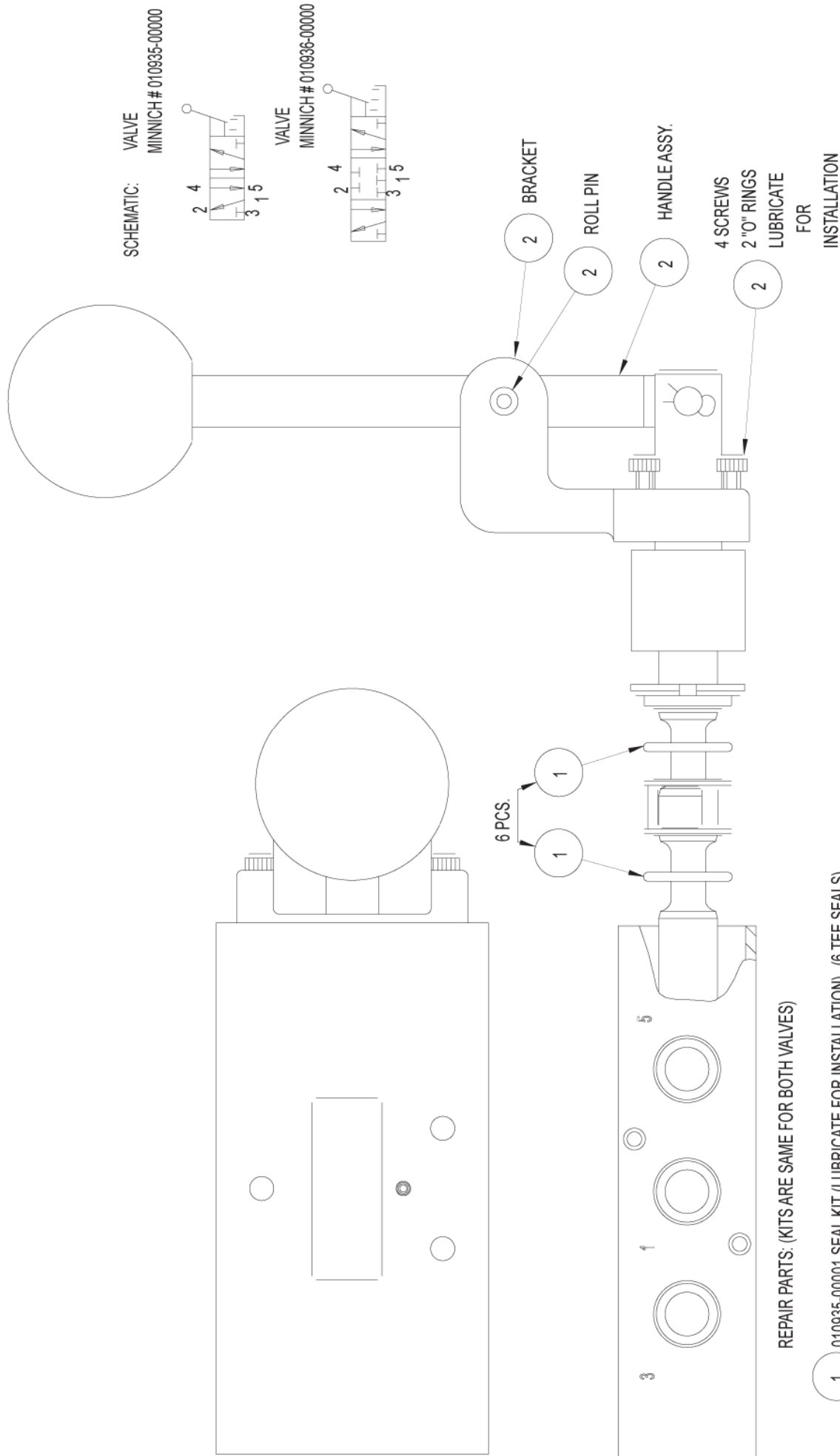
KEY ITEM	DESCRIPTION	QTY
----------	-------------	-----

- |     |                           |   |
|-----|---------------------------|---|
| + 1 | O RING IN.139X.859X1.137  | 1 |
| + 2 | O RING IN.139X1.234X1.512 | 1 |
| + 3 | O RING IN.103X.799X1.005  | 1 |
| + 4 | CUSH N SEAL N03           | 1 |
| + 5 | O RING IN.103X1.237X1.430 | 1 |
| 6   | SPRING 238/338 N03        | 1 |
| 7   | PLUG RUBBER .188 X .438D  | 1 |
| + 8 | SEAL POPPET N03           | 1 |

+ LUBRICATION REQUIREMENT

10925B.prt

# VALVES MINNICH P/N 010935-00000 010936-00000



# **PRESSURE REGULATOR**

## **MINNICH P/N 002880-00000**

### **OPERATION**

A regulator is used in a compressed air system to maintain nearly constant outlet pressure despite changes in the inlet air pressure and changes in downstream flow requirements.

Outlet pressure is controlled by the adjusting screw (1). clockwise rotation increases and counter- clockwise rotation decreases outlet pressure setting. When the adjustment (1) is rotated fully counter- clockwise, no force is applied to the regulating spring (2), and the valve (6) is held closed by the valve spring (7). clockwise rotation of the adjustment (1) compresses the regulating spring (2) which applies a downward force on top of the diaphragm (4). The diaphragm (4) and valve pin (5) move downward forcing valve (6) off its seat (10) which allows air to flow through the regulator to the downstream system.

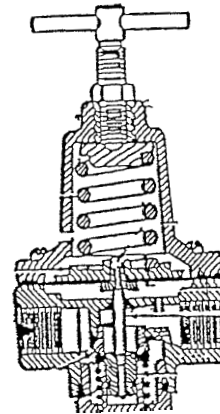
Outlet pressure increases in the downstream system and sensing chamber (9) and applies an upward force on bottom of the diaphragm (4). The diaphragm (4), valve pin (5); and valve (6) move upward, compressing the regulator spring (2). Upward movement stops when the forces below the diaphragm balance the forces above the diaphragm. When there is no downstream flow demand, the balance of forces occurs with the valve (6) closed. When there is downstream flow demand, the balance of forces occurs when the valve opens sufficiently to compensate for demand, thus maintaining the desired outlet pressure.

**RELIEVING TYPE REGULATORS.** With relieving regulators, outlet pressure can be reduced even though the system is dead-ended. When the adjustment (1) is turned counterclockwise, the force on the regulating spring (2) is reduced, and air pressure in the sensing chamber (9) moves the diaphragm (4) upward. This upward movement opens the relief passage (8) in the diaphragm and allows air to escape from the outlet side of the regulator through the relief passage (8) and vent (3) to atmosphere. As the outlet air pressure decreases to the reduced pressure setting, the diaphragm moves downward and closes the relief passage.

The diaphragm will likewise move upward in a response to an increase in outlet pressure above the regulator setting, allowing air to escape to the atmosphere as described above. However, the flow capacity of the relief passage is limited, and depending upon the source of the overpressure condition, the outlet pressure might increase to a point significantly higher than the regulator setting. For this reason, the relief feature of a regulator must not be relied upon as an overpressure safety device. See WARNING note below.

### **ADJUSTMENT**

1. Before turning on system air pressure, turn regulator adjustment counterclockwise until all load is removed from regulating spring.
2. Turn on system air pressure.
3. Turn regulator adjustment clockwise until the desired outlet pressure is reached.
4. To avoid minor readjustment after making a change in pressure setting, always approach the desired pressure from a lower pressure. When reducing from a higher to a lower setting, first reduce to some pressure less than the desired, then bring up to the desired point.
5. Tighten jam out to lock pressure setting.



Feed Regulator  
P/N 002880-00000  
Repair Kit  
P/N 002880-00001  
Regulating Spring  
P/N 002880-00004

### **MAINTENANCE**

The regulator can be disassembled for servicing without removal from pipe line. To disassemble, shut off the inlet air and reduce pressure in inlet and outlet lines to zero. Turn adjusting screw (1) counterclockwise until all load is removed from regulating spring (7 or 7a): Remove bonnet screws (4), bonnet (3), upper springrest (5), spring (7), and diaphragm assembly (8). The intermediate springrest (6) and compound spring (7a) are used only on 3/4" (19mm) and 1" (25.4mm) models with 5 to 125 PSI (0.34 to 8.62 Bar) adjustment range. Unscrew and remove bottom plug (16), O-ring (15) and valve spring (14). Pull valve assembly (11) together with O-ring (12) out of body. Do not remove valve seat (10) unless replacement is necessary. Remove O-ring (9) using a hook shaped tool, taking care not to damage O-ring seating surfaces or valve seat.

Clean parts using warm water and soap. Dry thoroughly. Inspect each part carefully. Replace any parts which are damaged.

At reassembly, apply a wipe coat of silicone base grease to O-rings (9, 12, 15), to stem and body of valve assembly (11), and to center bore in bottom plug (16). Apply a light even coat of light grease to full length of threads and tip of adjusting screw (1). Tighten valve seat (10), if previously removed, to 80-100 inch-pounds torque (9-11.3 N-m) (1/4", 3/8" and 1/2" sizes) (6.35mm, 9.53mm, and 12.77mm sizes) or 25-30 foot-pounds torque (33.9-40.7 N-m) (3/4" and 1" sizes) (19mm and 25.4mm sizes). Tighten bottom plug (16) snugly by hand. Tighten bonnet screws (4) to 20-30 inch-pounds torque (2.3-3.4 N-m) (1/4", 3/8" and 1/2" sizes) (6.35mm, 9.53mm, and 12.77mm sizes) or 50-60 inch-pounds torque (5.6-6.8 N-m) (3/4" and 1" sizes) (19mm and 25.4mm sizes).

### **WARNING**

THESE REGULATORS ARE INTENDED FOR USE IN INDUSTRIAL COMPRESSED AIR SYSTEMS ONLY. DO NOT USE THESE REGULATORS WHERE PRESSURE OR TEMPERATURE CAN EXCEED RATED OPERATING CONDITIONS. SEE SPECIFICATIONS.

IF OUTLET PRESSURES IN EXCESS OF THE REGULATOR PRESSURE SETTING COULD CAUSE DOWNSTREAM EQUIPMENT TO RUPTURE OR MALFUNCTION, INSTALL A PRESSURE RELIEF DEVICE DOWNSTREAM OF THE REGULATOR. THE RELIEF PRESSURE AND FLOW CAPACITY OF THE RELIEF DEVICE MUST SATISFY SYSTEM REQUIREMENTS.

BEFORE USING WITH FLUIDS OTHER THAN AIR, OR FOR NON-INDUSTRIAL APPLICATIONS, OR FOR LIFE SUPPORT SYSTEMS, CONSULT C.A. NORGREN CO.

# PRESSURE REGULATOR

## Minnich P/N 009626-00010

### SPECIFICATIONS

Fluid: Compressed air

Maximum inlet pressure: 300 psig (20.7 bar)

Temperature range: 0° to 175°F (-18°C to 79°C)

Air supply must be dry enough to avoid ice formation at temperatures below 35°F (2°C).

Gauge ports: 1/4" (0.64cm)

### MATERIALS OF CONSTRUCTION

Body: Aluminum

Bonnet: Aluminum

Bottom Plug: Acetal

Valve: Brass

Elastomers: Nitrile

### WARNING

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under Specifications.

If outlet pressure in excess of the regulator pressure setting could cause downstream equipment to rupture or malfunction, install a pressure relief device downstream of the regulator. The relief pressure and flow capacity of the relief device must satisfy system requirements.

The accuracy of the indication of pressure gauges can change, both during shipment (despite care in packaging) and during the service life. If a pressure gauge is to be used with these products and if inaccurate indications may be hazardous to personnel or property, the gauge should be calibrated before initial installation and at regular intervals during use. For gauge standards refer to ANSI B40.1.

### DISASSEMBLY

1. Shut off inlet pressure. Reduce pressure in inlet and outlet lines to zero. Turn adjustment 2A fully counterclockwise.
2. Regulator can be disassembled without removal from air line. Disassemble as shown on the exploded view.

### CLEANING

1. Clean parts with warm water and soap.
2. Rinse or dry parts.
3. Blow out internal passages in body with clean, dry compressed air.
4. Inspect parts. Replace parts found to be damaged.

### ASSEMBLY

1. Lubricate the following items with a light coat of o-ring grease.
  - all o-rings, valve stem (17), valve bore in bottom plug (14),
  - adjusting screw tip and adjusting screw threads inside bonnet (9), threads on bonnets (9) and bottom plug (14)
2. Assemble the regulator as shown on the exploded view.

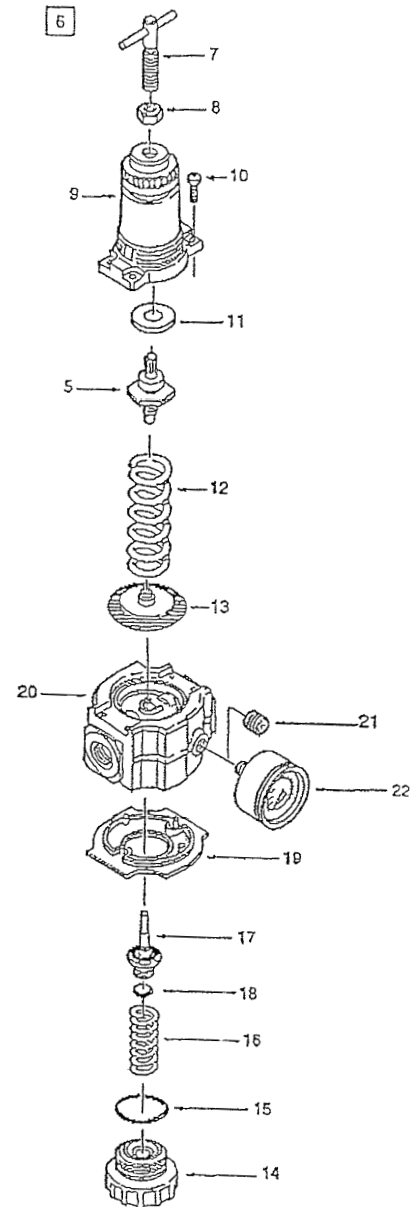
### Service Kit P/N 09626-00011

Includes (13, 15, 16, 17, 18)

### SERVICE KIT INSTALLATION

Repair kits are universal and may contain parts not used on your regulator. Always replace used parts with identical parts. Discard kit parts not used on your regulator.

**WARNING: REGULATOR IS PRESET AT FACTORY TO 94 PSI (6.5 Bar).**  
**DO NOT ADJUST, AS IT WILL VOID YOUR WARRANTY.**



# LUBRICATOR MINNICH P/N 001864-00000

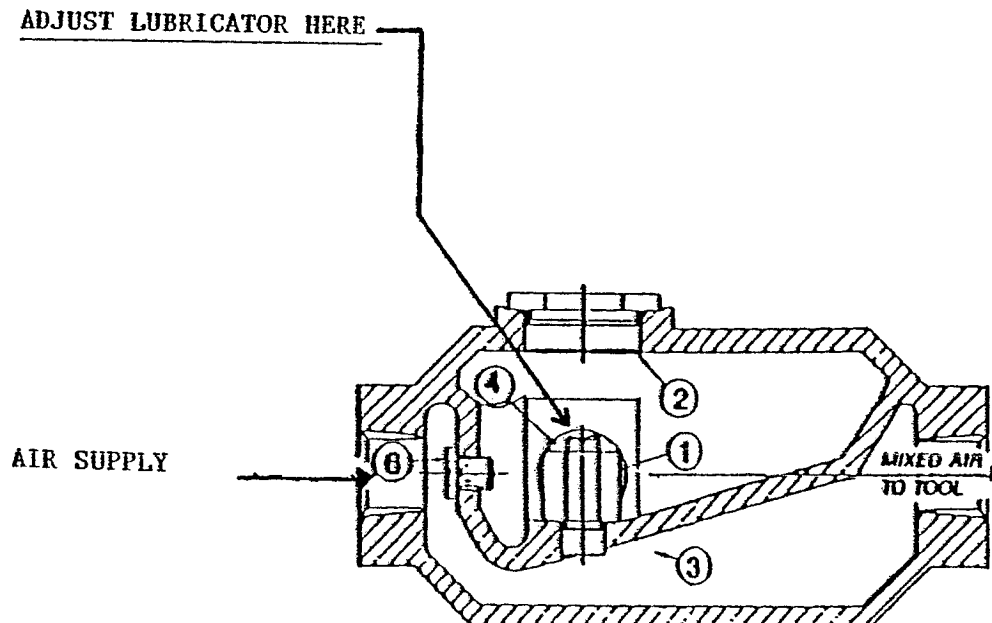
CAPACITY: 0.5 PINT (237mL)

PIPE SIZE: 3/4" (1.9cm) N.P.T.

Item Number	Minnich Part Number	Description
1	001864-00001	Feeder Assembly Kit
2	001864-00002	Manual Relieving Safety Cap
4	001864-00003	Sight Window
6	001864-00004	Check Valve (Constant Feed)
	006412-00916	Filler Cap O-Ring
	006412-00905	Feeder O-Ring

LUBRICATOR IS SET AT 5.5 FROM FACTORY. DIFFERENT TEMPERATURES MAY AFFECT FLOW OR OIL. YOU MIGHT HAVE TO ADJSUT LUBRICATOR ACCORDINGLY. BE SURE LUBRICATOR IS SET SO THAT YOU ALWAYS HAVE A LIGHT FILM OF OIL ON EXHAUST DEFLECTOR.

TO ADJUST LUBRICATOR, DISCONNECT AIR PRESSURE FROM DRILL UNIT. PUSH DOWN ON PRESSURE RELIEVING BUTTON ON FILL CAP. REMOVE FILL CAP. USING A SCREW DRIVER, ADJUST LUBRICATOR TO REQUIRED SETTING. TO INCREASE OIL, SET AT HIGHER NUMBER. TO DECREASE OIL, SET AT LOWER NUMBER.





# Lubricator (007330-00000)

**Warning:** DO NOT place plastic bowl unit in service without metal bowl guard installed.

Plastic bowl units are sold only with metal bowl guards. To minimize the danger of flying fragments in the event of plastic bowl failure, the metal bowl guards should not be removed. If the unit is in service without the metal bowl guard installed, manufacturer's warranties are void, and the manufacturer assumes no responsibility for any resulting loss.

**If unit has been in service and does not have a metal bowl guard,  
order one and install before placing back in service.**

## CAUTION:

Certain compressor oils, chemicals, household cleaners, solvents, paints and fumes will attack plastic bowls and can cause bowl failure. Do not use near these materials. When bowl becomes dirty replace bowl or wipe only with a clean, dry cloth. Reinstall metal bowl guard or buy and install a metal bowl guard. Immediately replace any crazed, cracked, damaged or deteriorated plastic bowl with a metal bowl or a new plastic bowl and a metal bowl guard.

WE CANNOT POSSIBLY LIST ALL HARMFUL SUBSTANCES. CHECK WITH A MOBAY CHEMICAL OR GENERAL ELECTRIC OFFICE FOR FURTHER INFORMATION ON POLYCARBONATE PLASTIC.

Except as otherwise specified by the manufacturer, this product is specifically designed for compressed air service, and used with any other fluid (liquid or gas) is a misapplication. For example, use with or injection of certain hazardous liquids or gases in the system (such as alcohol or liquid petroleum gas) could be harmful to the unit or result in a combustible condition or hazardous external leakage. Manufacturers warranties are void in the event of misapplication, and manufacturer assumes no responsibility for any resulting loss. Before using with fluids other than air, or for non-industrial applications, or for life support systems consult manufacturer for written approval.

## INSTALLATION

1. Refer to warning above.
2. Install as close as possible to the equipment requiring lubrication.
3. Install the unit with the air flowing through the body in the direction indicated by the arrow.
4. Install the same pipe-size unit as the pipeline in use. Avoid using fittings, couplings, etc., that restrict the airflow or baffle the oil out of the air at the lubricator outlet.
5. The lubricator may be filled under pressure by slowly removing the fill plug and pouring oil into the bowl through the fill tube. The tank may be taken off after the fill plug is removed. Do not replace the fill plug until the tank is secured in place. NOTE: As the fill plug is removed, the air pressure in the tank will be released.
6. Use only clean non-detergent oil. SAE 10 or lighter is usually best.
7. The rate of oil delivery can be controlled counterclockwise for more and clockwise for less delivery. This lubricator delivers all of the oil downstream that passes through the sight dome. The oil delivery rate will change automatically to deliver more oil during higher air flows and less oil for air flows lower than that at which the original setting was made.
8. Maximum pressure and temperature ratings for metal tanks are 200 psig (14 bar) and 175°F (79°C).

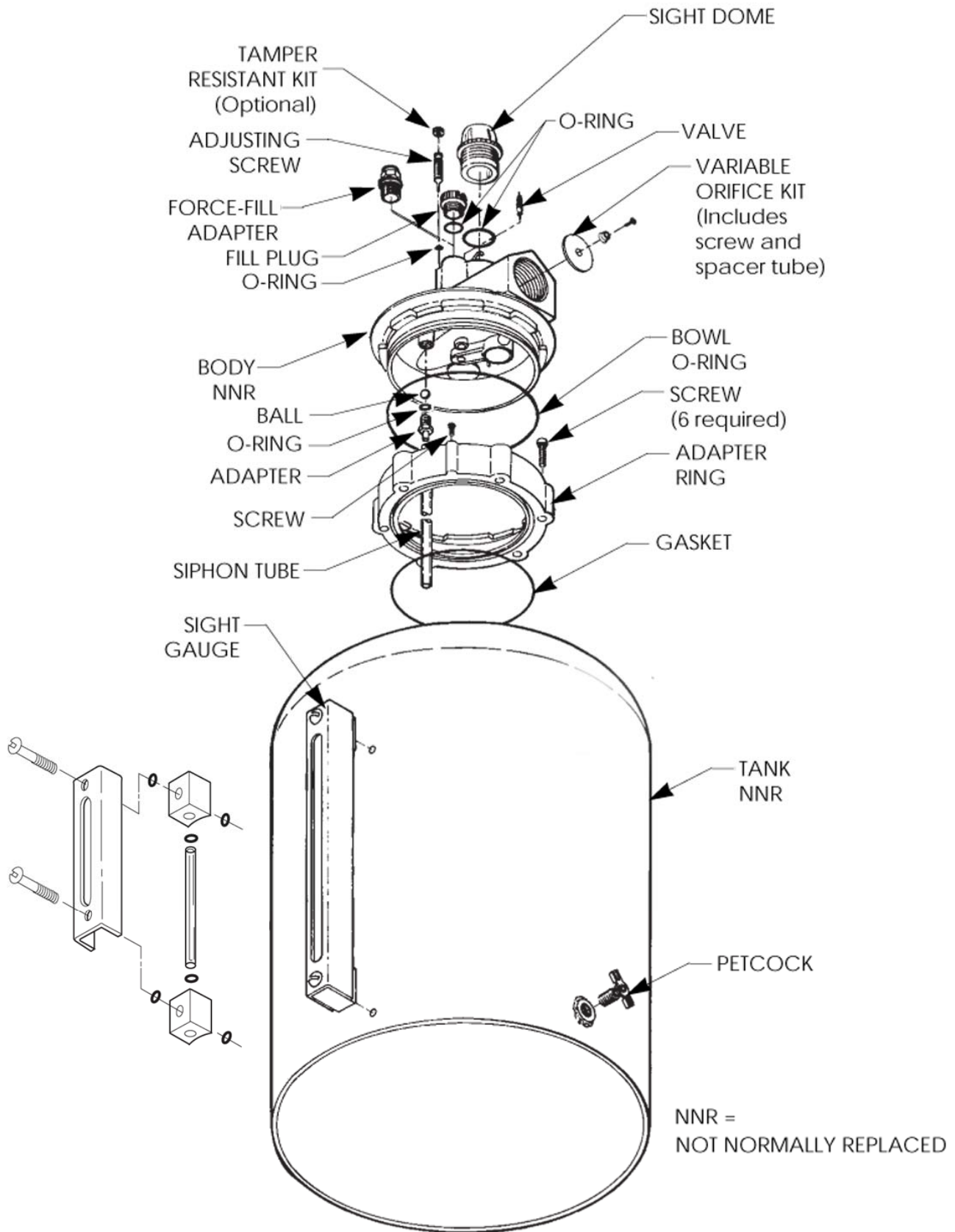
## MAINTENANCE

1. Given clean operating conditions, this unit should be trouble-free. Contaminants from dirty oil may collect on the siphon tube inlet filter, requiring the filter to be cleaned by tapping on a hard surface and blowing off with an air blow gun. Drain off any contaminants which collect in the bottom of the bowl.
2. IF THE OIL DELIVERY RATE DROPS, shut off the air supply to the lubricator and reduce the pressure in the unit to zero. Remove the Flow-Guide® variable orifice screw and clean its air passage with a small wire. Check the bore that the screw fits into for contaminants and clean, if necessary. Be sure that the passageway from the sight dome cavity into the Flow-Guide® variable orifice post is open. Remove the adjusting screw and clean the needle and the seat in the body. Inspect and clean the passage from the needle seat down into the adaptor.
3. Drain off any contaminants which collect in the bottom of the bowl.
4. Lubricate o-rings with Parker O-Lube before assembly.
5. Clean plastic bowl with a clean, dry cloth only.

0A3843-00020 Rebuild Kit (Includes all parts except tank, body and sight gauge kit)

003843-00017 Sight Gauge kit for 007330-00000 (not included in 0A3843-00020)

003843-00005 Sight Dome Kit (included in 0A3843-00020)

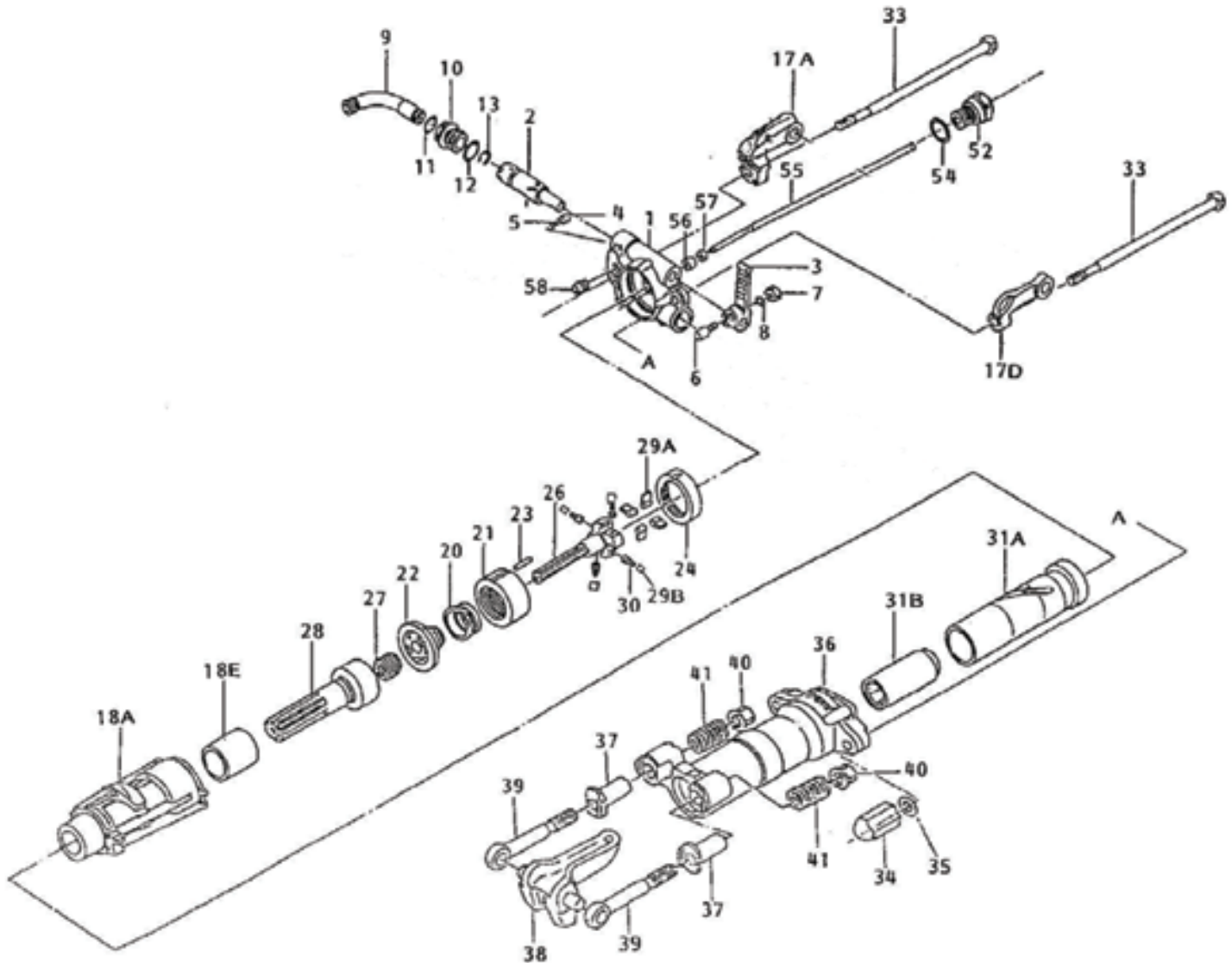


## 40# (17.2kg) Rock Drill (A-1C-48 & 36)

A12230-00000

When ordering replacement parts you need to furnish the model and serial number of the drill tool.

Specifications	
Net Weight	38lbs. (17.2kg)
Blows Per Minute	2400
Chuck Size	7/8" x 4 1/4" (22.2mm x 107.9mm)
Air Inlet (NPT)	3/4" (19.1mm)
Air Consumption	87.5cfm (2.5m <sup>3</sup> /min)



**WARNING:** Always disconnect the air supply before changing steel or dismantling the tool for service or repair. For maximum safety we advise the installation of a shut-off valve at the end of the air line.

The wear chart is a guide to expectant life of drill parts. The replacement levels are based on average tool use in one year period.

Wear Key: x=subject to external damage 1=non wear 3=low wear 5=medium wear 7=high wear 10=must replace

Example: (Must Replace) For every 10 tools used, 10 must be replaced.

(High Wear) For every 10 tools used, 7 must be replaced.

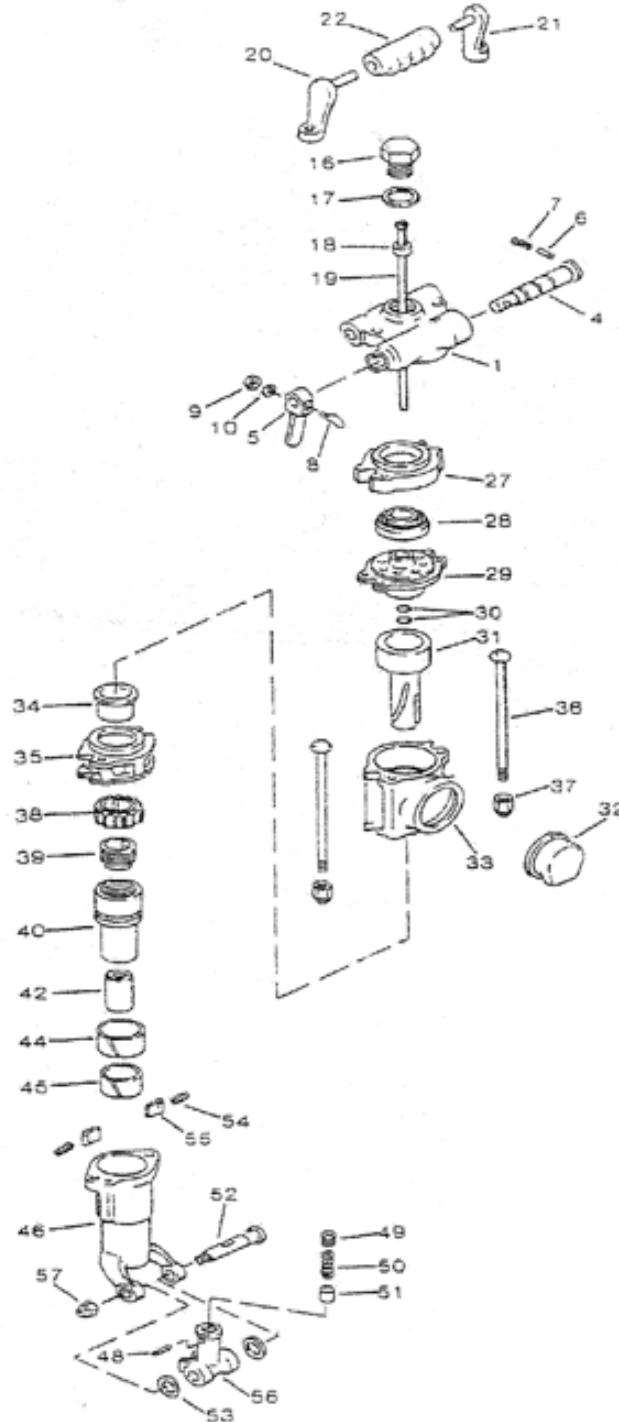
(Medium Wear) For every 10 tools used, 5 must be replaced.

FIG.	PART #	DESCRIPTION	Wear	QTY
1	012230-00001	BACK HEAD CP	1	1
2	012230-00002	THROTTLE VALVE	1	1
3	012230-00003	THROTTLE VALVE HANDLE	1	1
4	012230-00004	THROTTLE VALVE PLUNGER	1	1
5	012230-00005	THROTTLE VALVE SPRING	1	1
6	012230-00006	THROTTLE VALVE BOLT	1	1
7	012230-00007	THROTTLE VALVE HEX NOT (M10)	1	1
8	012230-00008	THROTTLE VALVE SPRING WASHER	1	1
9	012230-00009	AIR CONNECTION TUBE (PT)	X	1
	012230-0009N	AIR CONNECTION TUBE (NPT)	X	(1)
10	012230-00010	AIR CONNECTION NUT	1	1
11	012230-0011	AIR CONNECTION O-RING P-24	7	1
12	012230-0012	AIR CONNECTION O-RING P-30	7	1
13	012230-0013	AIR CONNECTION CLAMP	7	1
17	012230-00017	GRIP HANDLE ASSEMBLY (INCLUDES 17A, 17C AND 17D)	5	1
17A	012230-0017A	GRIP HANDLE SUPPORT (R)	1	(1)
17D	012230-0017D	GRIP HANDLE SUPPORT (L)	1	(1)
18	012230-00018	CYLINDER ASSEMBLY (INCLUDES 18A AND 18E)	1	1
18A	012230-0018A	CYLINDER	1	(1)
18E	012230-0018E	CYLINDER BUSHING	7	(1)
20	012230-00020	VAVLE	3	1
21	012230-00021	VALVE CHEST	1	1
22	012230-00022	VALAVE GUIDE	1	1
23	012230-00023	VALVE KNOCK PIN 4.7 X 53	1	1
24	012230-00024	RATCHET	10	1
26	012230-00026	RIFLE BAR	3	1
27	012230-00027	RIFLE NUT	10	1
28	012230-00028	PISTON (WITHOUT GROOVE)	7	1
	012230-0028G	PISTON (WITH GROOVE)	7	(1)
29A	012230-0029A	ROTATION PAWL	10	4
29B	012230-0029B	PAWL PLUNGER	1	4
30	012230-00030	PAWL PLUNGER SPRING	10	4
31	012230-00031	ROTATION SLEEVE ASSEMBLY (INCLUDES 31A AND 31B)	1	1
31A	012230-0031A	ROTATION SLEEVE	1	(1)
31B	012230-0031B	SLEEVE BUSHING	10	(1)
33	012230-00033	THROUGH BOLT	1	2
34	012230-00034	THROUGH BOLT NUT	1	2
35	012230-00035	SPRING WASHER M14	1	2
36	012230-00036	FRONT HEAD	X	1
37	012230-00037	FRONT HEAD BUSHING	7	2
38	012230-00038	STEEL HOLDER	7	1
39	012230-00039	STEEL HOLDER BOLT	5	2
40	012230-00040	STEEL HOLDER NUT	5	2
41	012230-00041	STEEL HOLDER SPRING	5	2
52	012230-00052	BLOW TUBE GRAND	X	1
54	012230-00054	BLOW TUBE O-RING P-28	7	1
55	012230-00055	BLOW TUBE	5	1
56	012230-00056	BLOW TUBE RUBBER PACKING	7	1
57	012230-00057	BLOW TUBE WASHER	3	1
58	012230-00058	BLOW TUBE PORT CONNECTION	3	1

### 30# (13.2kg) Rock Drill A11104-00100 (A-1C-30)

When ordering replacement parts you need to furnish the model and serial number of the drill tool.

Specifications	
Net Weight	29lbs. (13.2kg)
Blows Per Minute	2700
Chuck Size	7/8" x 3 1/4" (22.2mm x 82.6mm)
Air Inlet (NPT)	3/4" (19.1mm)
Air Consumption	73cfm (2.12m3/min)



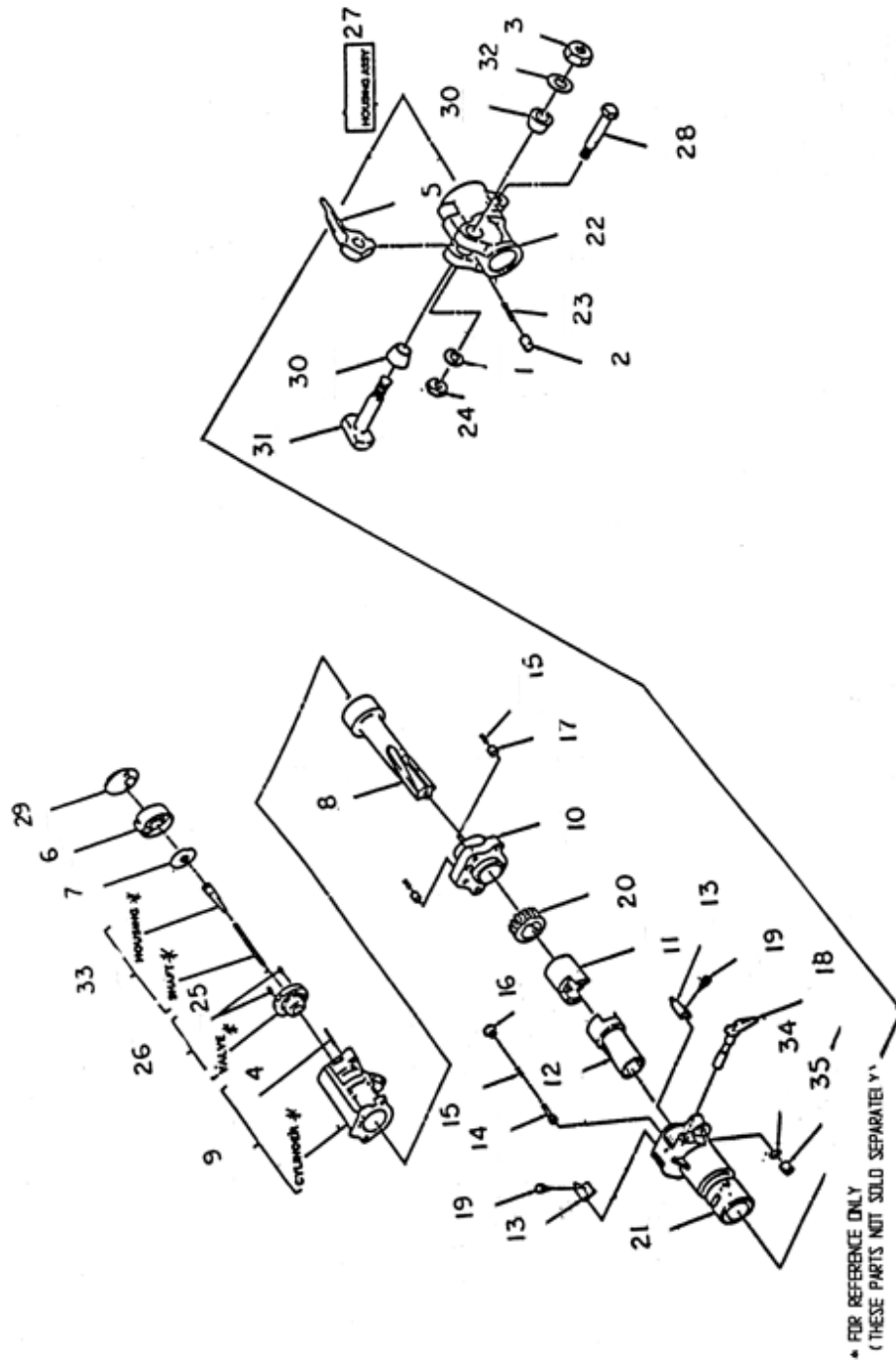
**WARNING:** Always disconnect the air supply before changing steel or dismantling the tool for service or repair. For maximum safety we advise the installation of a shut-off valve at the end of the air line.

FIG.	PART #	DESCRIPTION	QTY
1A	011104-00001	BACKHEAD ASSEMBLY	1
1	011104-00002	BACKHEAD	1
4	011104-00003	THROTTLE VALVE	1
5	011104-00004	THROTTLE VALVE HANDLE	1
6	011104-00005	THROTTLE VALVE PLUNGER	1
7	011104-00006	THROTTLE VALVE SPRING	1
8	011104-00007	THROTTLE VALVE BOLT	1
9	011104-00008	THROTTLE VALVE NUT	1
10	011104-00009	THROTTLE VALVE WASHER	1
16A	011104-00015	BLOW TUBE ASSEMBLY	1
16	011104-00016	BLOW TUBE GLAND	1
17	011104-00017	BLOW TUBE GLAND GASKET	1
18	011104-00018	BLOW TUBE GASKET	1
19	011104-00019	BLOW TUBE	1
20	011104-00020	RIGHT GRIP SUPPORT	1
21	011104-00021	LEFT GRIP SUPPORT	1
22	011104-00022	CENTER GRIP	1
27A	011104-00027	VALVE ASSEMBLY	1
27	011104-00028	VALVE CHEST	1
28	011104-00029	VALVE	1
29	011104-00030	VALVE COVER	1
30	011104-00031	O-RING	2
31	011104-00032	PISTON	1
32	011104-00033	EXHAUST DEFLECTOR	1
33	011104-00034	CYLINDER	1
34	011104-00035	FRONT WASHER BUSHING	1
35	011104-00036	FRONT WASHER	1
36	011104-00037	THROUGH BOLT	2
37	011104-00038	THROUGH BOLT NUT	2
38	011104-00039	RATCHET RING & RIFFLE NUT	1
39	011104-00040	SLEEVE NUT	1
40	011104-00041	ROTATION SLEEVE	1
42	011104-00043	SLEEVE BUSHING	1
43A	011104-00045	FRONT HEAD ASSEMBLY	1
44	011104-00046	FRONT HEAD LINER II	1
45	011104-00047	FRONT HEAD LINER I	1
46	011104-00048	FRONT HEAD	1
48	011104-00049	STEEL HOLDER PIN	1
49	011104-00050	STEEL HOLDER SCREW	1
50	011104-00051	STEEL HOLDER SPRING	1
51	011104-00052	STEEL HOLDER PLUNGER	1
52	011104-00053	STEEL HOLDER BOLT	1
53	011104-00054	STEEL HOLDER PACKING	2
54	011104-00055	PAWL SPRING	2
55	011104-00056	ROTATION PAWL	2
56	011104-00058	STEEL HOLDER	1
57	011104-00059	NUT	1
NS	011104-00061	ADAPTOR	1

## 15# (6.8kg) Rock Drill 0A9052-00000 (A-1C-24)

When ordering replacement parts you need to furnish the model and serial number of the drill tool.

Specifications	
Net Weight	14.5lbs. (6.58kg)
Chuck Size	7/8" x 3 1/4" (22.2mm x 82.6mm)
Air Inlet (NPT)	1/2" (12.7mm)
Air Consumption	36cfm (1.02m3/min)



**WARNING:** Always disconnect the air supply before changing steel or dismantling the tool for service or repair. For maximum safety we advise the installation of a shut-off valve at the end of the air line.

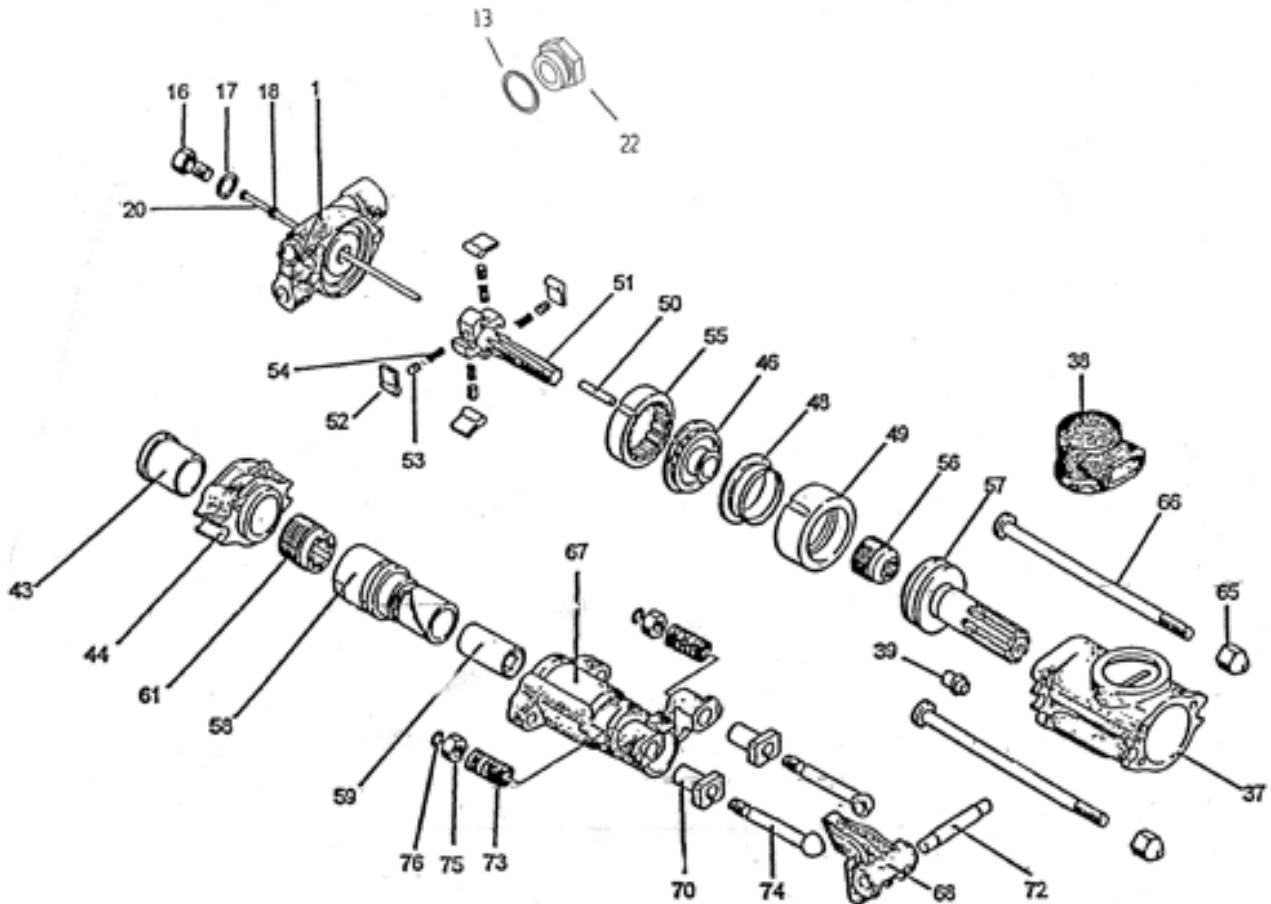
FIG.	PART #	DESCRIPTION	QTY
1	009052-0000	WASHER	1
2	009052-0000	PLUNGER	1
3	009052-0000	NUT	1
4	009052-0000	PIN	1
5	009052-0000	RETAINER	1
6	009052-0000	VALVE	1
7	009052-0000	VALVE	1
8	009052-0000	PISTON	1
9	009052-0000	CYLINDER ASSEMBLY	1
10	009052-000	BEARING	1
11	009052-000	DRIVER	1
12	009052-000	CHUCK	1
13	009052-000	PAWL	2
14	009052-000	PLUNGER	1
15	009052-000	SPRING	3
16	009052-000	BEARING	1
17	009052-000	PLUNGER	2
18	009052-000	LEVER	1
19	009052-000	SPRING	2
20	009052-000	SLEEVE	1
21	009052-000	HEAD	1
22	009052-000	HOUSING	1
23	009052-000	SPRING	1
24	009052-000	NUT	1
25	009052-000	PIN	1
26	009052-000	VALVE ASSEMBLY	1
27	009052-000	HOUSING ASSEMBLY	1
28	009052-000	BOLT	1
29	009052-000	GASKET	1
30	009052-000	CONE WASHER	2
31	009052-000	BOLT	1
32	009052-000	WASHER	1
33	009052-000	GUIDE ASSEMBLY	1
34	009052-000	WASHER	2
35	009052-000	NUT	2



## 50# (23kg) Rock Drill (A-2C) 0A9350-00000

When ordering replacement parts you need to furnish the model and serial number of the drill tool.

Specifications	
Net Weight	51lbs. (23kg)
Blows Per Minute	2300
Chuck Size	7/8" x 4 1/4" (22.2mm x 107.9mm)
Air Inlet (NPT)	3/4" (19.1mm)
Air Consumption	92.2cfm (2.6m3/min)



**WARNING:** Always disconnect the air supply before changing steel or dismantling the tool for service or repair. For maximum safety we advise the installation of a shut-off valve at the end of the air line.

FIG.	PART #	DESCRIPTION	QTY
1	009350-00001	BACKHEAD ASSEMBLY	1
13	009350-00013	AIR CONNECTION WASHER	1
16	009350-00016	BLOW TUBE GLAND	1
17	009350-00017	TUBE GLAND GASKET	1
18	009350-00018	BLOW TUBE GASKET	1
20	009350-00020	BLOW TUBE	1
22	009350-00022	PLUG ADAPTOR	1
37	009350-00037	CYLINDER	1
38	009350-00038	EXHAUST DEFLECTOR	1
39	009350-00039	BLOWING CONNECTION	1
43	009350-00043	FRONT WASHER BUSHING	1
44	009350-00044	FRONT WASHER	1
46	009350-00046	VALVE CHEST COVER	1
48	009350-00048	AUTOMATIC VALVE	1
49	009350-00049	VALVE CHEST	1
50	009350-00050	VALVE DOWEL PIN	1
51	009350-00051	RIFLE BAR	1
52	009350-00052	ROTATION PAWL	4
53	009350-00053	PAWL PLUNGER	4
54	009350-00054	PAWL SPRING	4
55	009350-00055	RATCHET RING	1
56	009350-00056	RIFLE NUT	1
57	009350-00057	PISTON	1
58	009350-00058	ROT. SLEEVE 1" X 4-1/4" (2.5cm X 10.8cm)	1
59	009350-00059	SLEEVE BSG 1" HEX. X 4-1/4" (2.5cm HEX X 10.8cm)	1
59A	009350-0059A	SLEEVE BSG 7/8" HEX. X 4-1/4" (2.2cm X 10.8cm)	1
61	009350-00061	SLEEVE NUT	1
65	009350-00065	SIDE ROD NUT	2
66	009350-00066	SIDE ROD	2
67	009350-00067	FRONTHEAD 1" X 4-1/4" (2.5cm X 10.8cm)	1
68	009350-00068	STEEL RET. 1" X 4-1/4" (2.5cm X 10.8cm)	1
68A	009350-0068A	STEEL RET. 7/8" X 4-1/4" (2.2cm X 10.8cm)	1
70	009350-00070	FRONTHEAD BSG.	2
72	009350-00072	STEEL RET. PIN	1
73	009350-00073	STEEL RET. SPRING	2
74	009350-00074	STEEL RET. BOLT	2
75	009350-00075	STEEL RET. NUT	2
76	009350-00076	RET. BOLT CLIP	2